

"In the Name of Allah
The Most Compassionate The Most Merciful"

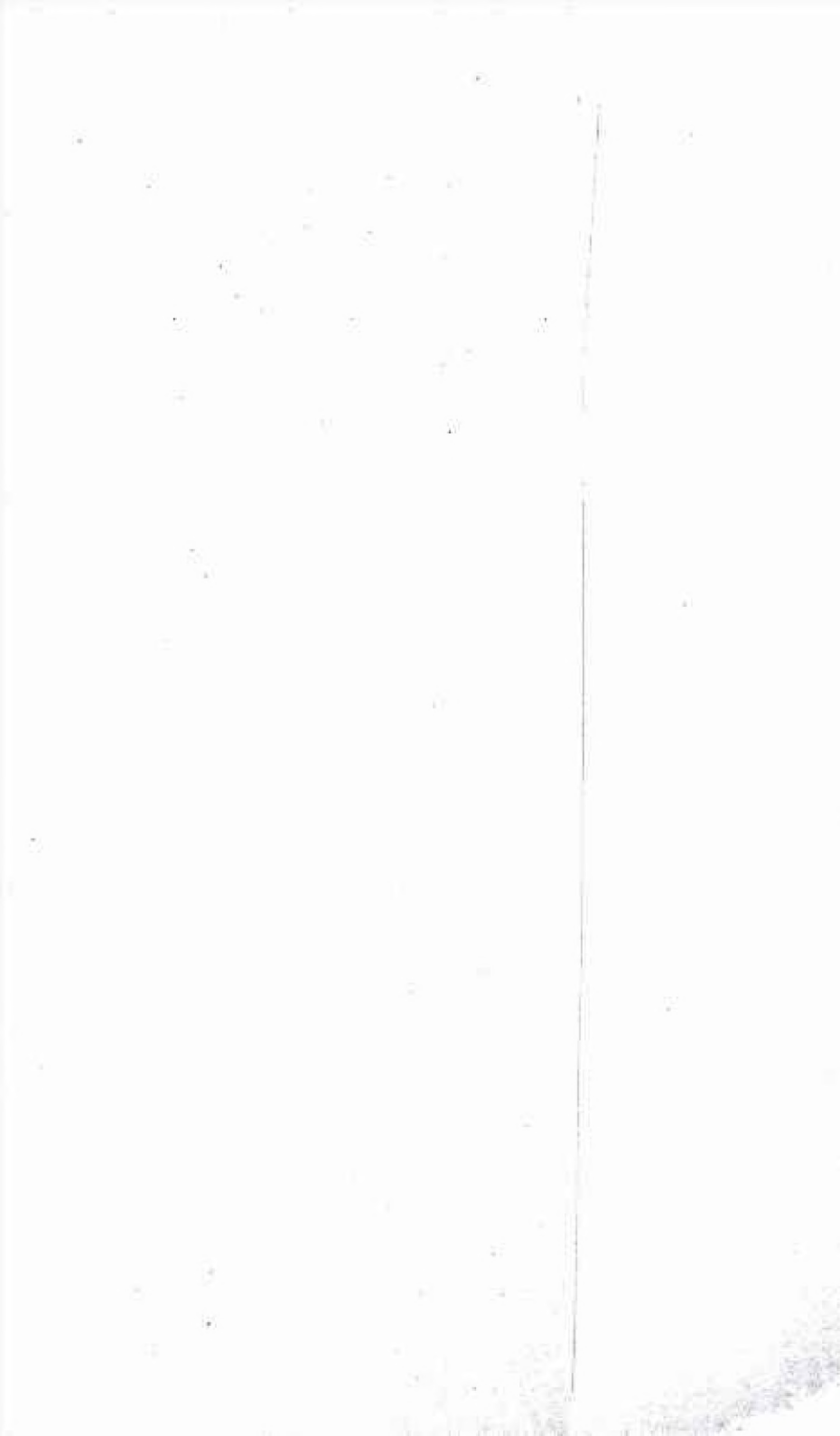
The Great

MUSLIM SCIENTIST & PHILOSOPHER

IMAM

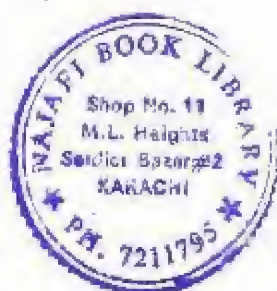
JAFAR IBN MUHAMMAD AS-SADIQ (A.S.)

Translated By:
Kaukab Ali Mirza



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***"In The Name of Allah
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The Most Merciful"***

**THE GREAT
MUSLIM SCIENTIST AND PHILOSOPHER**

**IMAM
JAFAR IBN MOHAMMED AS-SADIQ
(A.S.)**

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Note: The Great Muslim Scientist and Philosopher Imam Jafar Ibn Muhammad As-Sadiq (A.S.) Was originally published in Canada in April, 1996. Due to importance of the book, it is being produced in Pakistan. In the original book, 'Muhammad' has been spelled as 'Mohammed'. We express sorry for the readers who feel any inconvenience with regard to this change of spelling.

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INTRODUCTION

This book is a translation of "Maghze Muta'akkir Jehan Shia", the famous Persian book, which has been published four times in Tehran, Iran. The Persian book is itself a translation from a French thesis published by The Research Committee of Strasbourg, France, about the contribution made by Imam Ja'far as-Sadiq (A.S.) to science, philosophy, literature and irfan (gnosticism).

Members of the Research Committee have done a wonderful job and deserve thanks and gratitude from all those who love the Imam. However, I cannot help commenting that when the learned scholars, who were engaged in research, failed to find worldly sources of Imam's knowledge, they indulged in wild speculations and guesswork and were even guilty of misrepresenting historical facts to prove that Imam Mohammed al-Baqar and Jafar as-Sadiq (A.S.) had acquired their knowledge through the following sources:

- a. The Great Library of Alexandria.
- b. Coptic Scholars of Egypt.
- c. Books of Greek Philosophers
- d. Persian Physicians.

LIBRARY OF ALEXANDRIA

The library, which was established by Ptolemy I, was burnt down about 600 years before Muslims entered Egypt. There was no trace of scientific books of Coptic scholars in that country at the time of the Imam. Philip K. Hitti has described the burning of that library in *The History of The Arabs*:

"The story that by the order of the Caliph, Amr, for six months fed numerous bath furnaces of the city with volumes of Alexandrian Library is one of those tales that make good fiction but bad history. The

great Ptolemaic library was burnt as early as 48 B.C. by Julius Caesar. A later one referred to as the Daughter Library, was destroyed about A.D. 389 as a result of an edict by Emperor Theodosius. At the time of the Arab conquest, therefore, no library of any importance existed in Alexandria.⁽¹⁾

COPTIC SCHOLARS OF EGYPT

Macedonian General Ptolemy I, had become Pharaoh, with a court that spoke Greek. He established a museum and a library in Alexandria. During the reign of the first two Ptolemies, the two institutions proved to be of great help in spreading knowledge, but even before they were burnt and destroyed by the Romans, they had ceased to serve any useful purpose. When the Arabs conquered Egypt, the country was under total darkness. There was no lamp and no light which could have illuminated the Muslim world. H. G. Wells has described the state of affairs in Alexandria, after the first two Ptolemies, in the following words:

"For a generation or so during the reigns of Ptolemy I, and Ptolemy II, there was such a blaze of knowledge and discovery at Alexandria as the world was not to see again until the sixteenth century A.D. But it did not continue. The Museum produced little good work after the first century of activity."⁽²⁾

"So it was this blaze of intellectual enterprise never reached beyond a small circle of people in touch with the philosophers collected by the first two Ptolemies.

It was like the light in a dark lantern, which is shut off from the world at large. Within, the blaze may be blindingly bright, but nevertheless, it is unseen. Presently

(1) History of the Arabs by Philip K. Hitti, 4th. edition, Macmillan & Co. Limited, London, p. 166.

(2) A Short History of the World by H.G. Wells, Watts & Co., London, England, p. 97.

a darkness of bigotry fell upon Alexandria. Thereafter, for a thousand years of darkness, the seed that Aristotle had sown lay hidden. Then it stirred and began to germinate."⁽³⁾

The names of the Christian, Jewish, Sabian, and Zoroastrian scholars, who made contributions to the intellectual awakening and progress of the Arabs after the conquest of Syria, Iran and Iraq, are recorded in history. Many of them had become converts to Islam.

But we do not find the name of a single Coptic scholar in the list of these luminaries. Learned members of the Committee, who researched the life of Imam Ja'far as-Sadiq (A.S.), did not and could not mention a single Coptic scholar who might have come to Medina to educate the Muslims.

If there were any Coptic scholars in Egypt they would have gone to Baghdad, which was nearer to Alexandria and was the seat of the government, where they could have gained favour of the caliph, won fame, and made a fortune. They would not have made a long and arduous trek to Medina to give lessons to the Imams in astronomy, geography, physics and chemistry with no hope of recovering their expenses. Moreover, by doing so they would have definitely incurred the wrath of the people in power who were hostile to the Imams.

There was also the language problem. It would have been very difficult for Coptic scholars to communicate with the Imams and translate into Arabic what they had learnt in Greek, when there were no equivalent scientific and technical terms in Arabic. Even up to the time of Ma'mun, who was giving gold equal to the weight of Greek books, which were translated into Arabic, there were few scholars in the Muslim world, who could do the job, take that rich reward, earn fame and get a lucrative post in the Translation Bureau of the Caliph.

Since there were no scholars who were proficient in Greek as well as in Arabic languages, most of the Greek works were first translated into Syriac, an old language of Syria, by the

(3) A Short History of the World by H.G. Wells, p.98.

scholars, who knew Greek as well as Syriac. Then they were translated from Syriac into Arabic by young Syriac knowing scholars who had also studied Arabic. The difficult passages in the original were translated word for word. Where no Arabic equivalent was known, the Greek terms were simply transliterated with some adaptations.

BOOKS OF GREEK PHILOSOPHERS

Imam Ja'far as-Sadiq (A.S.) had attacked the theories of Ptolemy and Aristotle, when he was a student in the Academy of his father, Imam Mohammed al-Baqar (A.S.), who died in A.H. 114, when the Umayyads were in power. No scientific, mathematical, or philosophical books were received or translated in that period. The work of collection and translation of books began when al-Mansur assumed the caliphate in A.H. 136. In the year 154 of the Hijra, six years after the death of Imam Ja'far as-Sadiq, (A.S.) an Indian traveller introduced a treatise on astronomy in Baghdad, which was translated into Arabic by Mohammed ibn Ibrahim on the order of al-Mansur. The same traveller introduced another Treatise on Mathematics by means of which the numerals, which are called Arabic numerals, entered the Muslim world. It was the temptation of a handsome reward, which had lured the people to bring books to Baghdad.⁽⁴⁾

Al-Mansur dispatched emissaries as far as Constantinople to Emperor Leo, in quest of Greek works, and is reported to have received from the Byzantine emperor a number of books including Euclid.⁽⁵⁾

Al-Hajjaj ibn Yusuf ibn Matar (169-216 A.H) is credited with making the first translation of the *Elements of Euclid* and one of the first of *Almagest* of Ptolemy. But these translations had not been done properly and had to be revised or retranslated during the caliphates of ar-Rashid and al-Mamun.

One of the pioneer Greek translators was Abu-Yahya

(4) History of the Arabs by Hitti, p. 307.

(5) Ibid. p. 310.

ibn al-Batriq (179-189 A.H.). He is reported to have translated major works of Galen and Hippocrates for al-Mansur. He is also said to have translated Ptolemy's *Quadripartitum*.⁽⁶⁾

Translation work was done sporadically for al-Mansur and ar-Rashid. In A.H. 213 al-Mamun established his Bayt al-Hikma, which was a combination of Library, Academy and Translation Bureau. He appointed Hunayn ibn-Ishaq as the Superintendent of the Bayt-al-Hikma. As the chief translator of scientific works he was assisted by his son, Ishaq, his nephew Hubaysh ibn al-Hasan and many other students.

Since most of the translators were Aramaic (Syriac) speaking, many of the Greek works were translated first into Aramaic (Syriac) before their rendition into Arabic. In many cases Hunayn did the initial translation from Greek into Syriac and his colleagues took the second step and translated them from Syriac into Arabic. Aristotle's *Hermeneutica*, for instance, was first done from Greek into Syriac by the father, and then from Syriac into Arabic by the son, Ishaq, who had studied Arabic. He is credited with translating the works of Galen, Hippocrates and Dioscorides as well as Plato's *Republic*, Aristotle's *Categories*, *Physics* and *Magna Moralia*.⁽⁷⁾

Another famous group of translators was Thabit ibn Qurrah (219-284 A.H) and his disciples, who were mostly Sabians from Harran.

They were star worshippers and as such were interested in astronomy and mathematics. Most probably they studied those subjects from Ja'far as-Sadiq (A.S.) or his students. Thabit and his disciples are credited with translating Greek mathematical and astronomical works including those of Archimedes. He also revised the translation of Euclid, which was done before.

(6) Ibid. p. 311.

(7) History of the Arabs by Hilli, p. 312.

PERSIAN PHYSICIANS

In those days there were no colleges in many places like Jundi Shahpur, where students could go and learn the science of medicine. If someone wanted to work as a physician, he had to serve for decades as an apprentice under an experienced physician. Medical knowledge could not be acquired simply by reading books since they were not available.

Iran made little contribution to the world of science, medicine and philosophy. Only one book of astronomy is reported to have been translated from Pahlavi into Arabic in A.H. 198 by al-Fadl ibn Nawbakht, the chief librarian of ar-Rashid. Ibn al-Muqaffa translated the famous book of fables, *Kalilah and Dimna*, from Pahlavi into Arabic.

"Except in the arts of belles-lettres Persia did not have much that was original to contribute. The aesthetic temperament of Iranian population was a sorely needed element in the cultural life of Semitic Arabians. Next to the artistic, the literary, rather than scientific or philosophical was the influence most clearly felt from Persia."⁽⁸⁾

Jundi Shahpur in Iran was noted for its Academy of Medicine, which was established by Anusharwan in 555 A.D. According to some historians, the Greek system of medicine was being taught in that institute, but the language of instruction was Aramaic (Syriac). In A.D. 765 Caliph al-Mansur appointed Jurjis ibn-Bakhtishu, the dean of the hospital, as his court physician. Abbasid caliphs, who were patrons of the Academy, could not find a single book on philosophy, medicine or any scientific subject which was considered suitable for translation into Arabic.

Imam Ja'far as-Sadiq had not attended the classes of Jundi Shahpur; he did not serve as an apprentice under any Persian physician; and he could not have obtained and studied the books on medicine, written in Pahlavi script during the pre-

(8) History of the Arabs by Hitti, p. 308.

Islamic period. It is, therefore, preposterous to presume that he had learned the science of medicine from the Iranians.

The above facts conclusively prove the contention of the Shias that their Imams had supernatural knowledge (Ilm-e-Ladunni). Said Ali ibn Abi Talib (A.S.):

"You should know that the knowledge, which came from heaven for Adam and every kind of knowledge which adorned all the prophets of God including Prophet Mohammed (May Allah bestow His Blessings upon him and his progeny) is with his descendants."⁽⁹⁾

Aristotle, who was the teacher of Alexander, was well known to the Arabs. They called him Muellim (the teacher). They must also have become familiar with the names of Ptolemy, Socrates, Plato and other philosophers of Greece and Alexandria, but they did not know what they had written and what they had said.

Imam Mohammed al-Baqar and Jafar as-Sadiq knew that the Muslim world would be flooded with books of the philosophers of Greece and Alexandria and that the Muslims would blindly accept everything they had written as the Gospel truth. Thus, many of their false and fallacious theories would catch their imagination, corrupt their minds, and keep them under total darkness for centuries, which is actually what happened. For example, the theory of Ptolemy that the earth is the centre of the universe and the sun, the planets and the stars rotate around it was generally accepted by the Muslims as correct.

The two Imams explained to their students, who were to spread their teachings among the Muslims, the theories of those philosophers, pointed out their mistakes and presented their own correct theories. Similarly they taught them physics, chemistry, geography, etc, prior to the translation of these subjects from Indian, Greek and Persian into Arabic. Because they were the Imams (representatives of Allah on earth) they

(9) Tafsir-e-Quran, by Abul Hasan Ali Ibrahim Qommi.

had the knowledge of the theories of Greek philosophers and others. There can be no other explanation.

INTELLECTUAL AWAKENING OF THE MUSLIMS

The momentous intellectual awakening of Muslims witnessed in the second century of the Hijra was not due to Hellenic or other foreign influences, as some Western historians have recorded. It was the result of untiring and ceaseless efforts made by the members of the Prophet's family, who worked hard under very hostile conditions and made great sacrifices to bring about that golden age of knowledge.

It is an irony of fate that bloodthirsty Bani Abbas, who were never interested in knowledge, took the credit for the intellectual awakening of Muslims. The standard of morality, knowledge and intelligence of as-Saffah, al-Mansur and other members of that tribe can be judged by the heinous and horrid acts of savagery they perpetrated. They murdered in cold blood thousands of innocent Muslims, men, women and children. They feasted merrily amid moaning and groaning of their guests, whom they had invited and then cut into pieces. They exhumed the dead bodies of Umayyad caliphs from the graves, flogged them and burned them.

Among all the Abbasid caliphs, only al-Mamun was interested in knowledge. The rest of them were interested in accumulation of wealth, a luxurious life, worldly pleasures and satisfaction of their carnal desires.

A halo of glory and grandeur has been placed round the head of Harun by the historians and story tellers. He was nothing but a tyrant and a despot. He slaughtered the whole tribe of Barmakids simply because his vizier, Jafar had children from his sister, Abbasa. They were legally married by the caliph himself. His palace with its annex for his harems, slave girls, eunuchs and functionaries occupied one third of the city of Baghdad. He was more interested in frivolous pastimes, belly dancers and drinking wine than in science and literature.

"Like a magnet the princely munificence of Harun, the beau ideal of Islamic kingship, and of his immediate successors attracted to the capital poets, wits, musicians, singers, dancers, trainers of fighting dogs and cocks and others, who could amuse, interest and entertain."⁽¹⁰⁾

"Al-Amin of whom ibn al-Athir found nothing praise worthy to record, had a number of special barges, shaped like animals built for his parties on the Tigris. One of these vessels looked like a dolphin, the other like a lion, the third like an eagle. The cost of one of them was 3,000,000 dirhams. We read in Aghani of picturesque all night ballet conducted under caliph al-Amin's personal direction on which large number of beautiful girl dancers performed in rhythmic unison to the soft harmony of music and were joined in their singing by all those who attended."⁽¹¹⁾

The bayat (oath of allegiance) to as-Saffah, the first Abbasid caliph, was taken in A.H. 132. He spent most of his time in killing people and consolidating his position. He died in A.H. 136 and was succeeded by his brother, al-Mansur.

When things settled down, al-Mansur found, to his great consternation, that if Bani Abbas had built an empire on the dead bodies of the Muslims, Imam Jafar as-Sadiq had built a greater and more lasting empire in the hearts and minds of the Muslims. If the name of al-Mansur was recited from every pulpit in Friday khutbas, the name of the Imam was also mentioned in every place in the Muslim world. The teachers and preachers of every sect of Islam used to say, "Qala al-Alim", meaning the Imam, to prove the authenticity of the traditions they quoted.

Muslims had great love and respect for the Imam, because he descended from their Prophet and because he was the most pious and learned man in the Muslim world.

This made al-Mansur jealous of him. He was also

(10) History of the Arabs, by Hitti p. 303.

(11) History of the Arabs by Hitti, p. 303

suspicious of the sincere efforts of the Imam to spread knowledge among Muslims. He took it as a strategy of the Alids to capture power, just as the Umayyads had taken the mission of Prophet Mohammed (SAW) as a plan of Bani Hashim to attain supremacy and worldly power. Yezid expressed those views openly. Two lines of a verse, which he recited in his crowded court read as follows:

*"Laabat al Hashim bil Mulk Fela;
Khabarun Ja-a We la Wahyun Nazal."*

(It was a game of Bani Hashim for worldly power. Actually no message came to him (Prophet Mohammed) nor there came any Wahi (revelation))⁽¹²⁾

After the Umayyads were defeated and destroyed, the Abbasids turned against the Alids, who had fought side by side with them for more than hundred years. They were denied all government jobs, humiliated, imprisoned, tortured and killed in large numbers.

A master plan was prepared, most probably, by Khalid Barmaki, Chief Minister of the caliph, to close the Academy of the Imam and destroy his influence among Muslims.

AL-MANSUR CLOSES MEDINA ACADEMY

It is reported on the authority of Mufazzal bin Umar that al-Mansur wanted to kill Imam Jafar as-Sadiq. He called him many times with this intent, but when he saw him, he was filled with fear and could not carry out his vicious plan. Instead, he placed the Imam under house arrest. For a long time, the followers of the Imam were not allowed to see him and he was not permitted to see them. That put the Shias under great hardship. They could not consult their Imam, even on such matters as marriage, divorce, etc.⁽¹³⁾

Since al-Mansur could not kill the Imam openly, he poisoned him secretly. That was the end of Medina Academy.

(12) Magtale Bihar-e-Anwar, by Allama Majlisi, v. II, p. 82.

(13) Managib Shahr Ashub, vol. iv, p. 238.

Just as the Umayyad caliphs followed the policies of Muawiyah, the Abbasid caliphs followed the policies of al-Mansur who was considered to be the real founder of the Abbasid empire.

After the death of Imam Jafar as-Sadiq, no Imam was allowed to live permanently in Medina and spread knowledge among Muslims. They were exiled to Basra, Baghdad, Samarra or Marve, where they were either held in prison or placed under house arrest.

It was easy for al-Mansur to close the Academy of Imam Jafar as-Sadiq by putting him under house arrest or by killing him, but it was very difficult to eradicate his influence among the Muslims. He was loved by them for his ancestry, his piety and his knowledge. Moreover, he had taught and trained 4,000 to 12,000 students, who were spreading knowledge among the masses. Some of them were great scholars of Quran, Tafsir, Islamic jurisprudence, history and literature and some were great physicists, chemists, astronomers and mathematicians.

To destroy the influence of the Imam in the field of Religion al-Mansur and his successors encouraged sectarianism. Many new schools of Islamic Jurisprudence appeared in that period and were fully supported by them. Since the leaders of the new sects had the backing of the government, their ideologies spread and the number of their adherents increased. On the other hand, those, who followed the teachings of the Imam, were systematically persecuted by Abbasid caliphs. They were forced either to dissimulate and hide their religious beliefs or to join other sects. As a result, the number of the Imam's followers dwindled and decreased.

Since al-Mansur could not find in the Muslim world anyone who could rival the Imam in physics, chemistry, astronomy, mathematics and other sciences, he spent large sums of money and imported books from different countries on scientific subjects. They were translated into Arabic, and taught in schools and colleges. Gradually the names of Socrates, Plato, Aristotle, and Ptolemy became household words and their

scientific and philosophical theories captured the imagination and dominated the thoughts of Muslims for centuries. That scheme proved so successful that in the course of time, Muslims totally forgot about the scientific achievements of the Imam and important discoveries made by him.

Kaukab Ali Mirza.

PREFACE

Learned scholars from Europe have been studying Islamic Literature from the beginning of the 17th century. It was only after the expansion of their universities that American scholars started doing research on Islamic subjects.

American and European scholars have written many books, after years of research, on Islam and great Muslim scholars. A number of them have been translated into Persian. I have translated some of them myself, which have been published in Iran.

Up until the 2nd World War in this century, American and European scholars were not interested in studying the literature of the Shias, who believe in 12 Imams. It was only after World War II that they showed some interest in the Shia faith and its heroes.

The Research Committee at Strasbourg, which studied the life of Imam Jafar as-Sadiq and published this thesis, is engaged in the study and investigation of all religions of the world, including Islam.

Members of the Research Committee, except the lecturers at the University of Strasbourg, are not permanent residents of that city. Most of them live in other countries and send their research papers to the office of the Committee periodically. As reported by one of the professors, who teaches Persian language in that university, the members meet every two years to exchange views.

I have translated into Persian a part of their Thesis on Shia Faith and published it under the title, "Imam Husain and Iran". Another part of the Thesis, which is on the life of Imam Jafar as-Sadiq (A.S.) is translated by me and is the substance of this book.

This is not a literal translation of the original document. I have arranged and presented the contents in such a way that they may be easily understood by Persian readers.

I am a Muslim. I subscribe to the Shia ideology and believe in the 12 Imams, but I did not know why the Shia sect is also called the Jafri sect.

I also knew nothing about Imam Jafar as-Sadiq. I was quite ignorant of his biography and had no idea as to what he had said and what he had done during his lifetime. All I knew was that he was the son of Imam Mohammed al-Baqar (A.S.) and father of Imam Musa al-Kazim (A.S.). I also knew where he was born and where he died.

I was always wondering why our sect was called Jafri and not Allawi. Was not Ali ibn Abi Talib (A.S.) our first Imam? When I was writing the book, "Imam Husain and Iran" for the Persian Magazine, Khundeneha, my heart was throbbing with love and respect for Imam Husain (A.S.). I was thinking that in view of his devotion to Islam and great sacrifices made by him for the sake of Muslims it would have been most appropriate if our sect was called Husaini sect.

While I was torn between these conflicting ideas, I received the thesis on the life of Jafar as-Sadiq (A.S.), published by The Research Committee of Strasbourg, France. That thesis opened my eyes, satisfied my curiosity and solved my problem. Now I know why our sixth Imam enjoys such an important position among the 12 Imams and why his name is associated with our sect.

My learned readers might say that my ignorance about our Imam was due to my own laziness. If I was keen to know about him I should have read Bihar, by Allama Majlisi, Waffiyat ul Ayan by ibn Khalkan, Kitab Wafi, by Mulla Mohsin Faiz, Usule Kafi by Kulaini or Nasikh ul Tawarikh by Lisan ul-Mulk Sepahar. In reply to them I would like to say that I had read some of the books written by great Muslim authors. I found them full of praises for the Imam and the miracles he had performed, but I could not find out through them as to why our sect is called the

Jafri sect.

It is my firm conviction that by reading the books written in the past by Shia scholars no one can learn how Imam Jafar as-Sadiq saved the Shia sect from sure destruction. If he had not been there the Shias, who believe in 7 Imams or 12 Imams, would have ceased to exist by now. I therefore, decided to translate this valuable thesis into Persian so that our younger generation might not remain ignorant about our Imam.

In order to acknowledge our debt of gratitude to that great man and scholar, it is our duty to let others know what is his place in history, literature, science and theology.

Many subjects which have been discussed in this book cannot be found in the books that were written in the past by Persian and Arabic scholars.

I may add that literary and scientific knowledge of Imam Jafar as-Sadiq was much more than what has been described in this book. Perhaps this would be the beginning of a thorough study of the life of our Imam and a comprehensive research into his literary and scientific achievements by Shia scholars of Iran and other Muslim countries.

Names of some prominent scholars, who are members of The Research Committee of Strasbourg, France, are as follows. Most of them are professors and lecturers of different universities in Europe and the United States:

1. Mr. Arman Bull, University of Brussels.
2. Mr. John Oben, University of Brussels.
3. Mr. Robert Brunswick, University of Paris.
4. Mr. Claude Cohen, University of Paris.
5. Mr. Henri Corbone, University of Strasbourg.
6. Mr. Tofiq Fahal, University of Strasbourg.
7. Mr. Fancisco Gabreili, University of Rome.
8. Mr. Richard Graham Lynch, University of Germany
9. Miss Ann Lipton, University of London.
10. Mr. Evan Lenan, University of Chicago.
11. Mr. Henri Matisse, University of Paris.

12. Mr. Husain Nasr, University of Tehran.
13. Mr. Charles Pila, University of Paris.
14. Mr. Musa Sadr, Great Scholar, Sur, Lebanon.
15. Mr. George Wazda, University of Lyons, France.
16. Mr. Arna Ludz, University of Lyons, France.
17. Mr. Elyas, University of Los Angeles.
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Germany.
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THE BIRTH OF IMAM JAFAR AS-SADIQ (A.S.)

Jafar as-Sadiq (A.S.) was born in Medina, on the 17th day of Rabi ul-Awwal in the year 82 of the Hijra. His father was Mohammed bin Ali al-Baqar (A.S.). When he grew up he became famous by the name of Jafar as-Sadiq.

The nurse who delivered him found him very weak, lean and thin. She was not sure that he would live for more than a few days. However, she wanted to have her reward and go. She put the boy by the side of his mother and went out of the room to see Mohammed al-Baqar (A.S.) and convey the good news to him. If the new born was a girl, the nurse could not hope to get anything. No one in Arabia rewarded a nurse for delivering a girl, but everyone gave something to one who delivered a boy. Until A.H. 82, most Arabs were following old traditions. They were delighted with the birth of a boy and disappointed with the birth of a girl.

Since Mohammed al-Baqar (A.S.) was not at home, the nurse went to Ali ibn Husain (A.S.) well known as Zain ul-Abideen, the grandfather of the boy. When the nurse conveyed the tidings of the birth of his grandson, the Imam blessed the boy and asked the nurse whether she had given the good news to the father of the boy as well.

"He is not at home," replied the nurse, "otherwise I would have informed him also."

Ali ibn Husain (A.S.) said: "I want to see the boy, but do not bring him out. It is very cold today." Then he asked her whether the baby was handsome.

The nurse could not dare to say that the boy was very weak. She only said that he was beautiful and had lovely blue eyes. Ali ibn Husain (A.S.) remarked. "Oh, his eyes are just like the eyes of my mother. May God bless her soul."

The eyes of Shahar Banu, daughter of Yezdagird III, were blue. According to the Law of Mendel, Jafar as Sadiq (A.S.) had inherited the blue colour of his eyes from his grandmother.

It is reported that the eyes of Kayhan Banu, another daughter of Yezdagird, who was among the prisoners brought from Medain to Medina, were also blue. If this story is correct, he had inherited blue eyes from the two sisters belonging to the royal family of Iran. Kayhan Banu was also his grandmother.

Ali ibn Abi Talib (A.S.), who was the guardian of the prisoners, belonging to the royal family of Iran, gave Shahar Banu in marriage to Imam Husain (A.S.) and Kayhan Banu to Mohammed ibn Abi Bakr, whom he loved as his own son. When Ali became the caliph, he appointed him (Mohammed) as the Governor of Egypt.

Mohammed ibn Abi Bakr had a son from Kayhan Banu by the name of Qasim. Umme Farva, daughter of Qasim, was married to Mohammed al-Baqar (A.S.) and was the mother of Jafar as-Sadiq (A.S.)

Jafar as-Sadiq (A.S.) was born 82 years after the migration of Prophet Mohammed (SAW) to Medina. At that time the Meccans were no longer addressed as Muhajirs or emigrants and local residents of Medina were not called Ansars, yet engaging wet nurses for new borns was a custom among Meccans, including the family of Ali ibn Husain.

Mohammed al-Baqar wanted to hire a nurse, but Umme Farva did not agree. She said that she would nurse the baby herself. Most probably his weakness raised a feeling of pity in her heart. She might have thought that such a weakling should not be made to depend upon a wet nurse, who, however, sympathetic, would not take as much care as the mother.

There are a number of stories about the childhood of Jafar as-Sadiq. It is said that he was born circumcised and with a full set of teeth. He might have been born circumcised, since many boys are born as such, but it is unbelievable that he had a full set of teeth at the time of his birth. If that was the case his

mother could not have nursed him. When babies grow teeth it becomes very painful to nurse them. For that reason mothers usually stop nursing babies when they grow two sets of upper and lower teeth. There is another story that says he began to speak as soon as he was born.

It is also reported on the authority of Abu Horera, a famous companion of the Prophet, that the Prophet of God had said about Jafar as-Sadiq (A.S.) that one of his descendants would become very famous as Sadiq (truthful).

Some traditions that have been reported in the name of Abu Horera are nothing but forgeries. Abu Horera himself was not a forger and did not forge traditions, but others fabricated them in his name thinking that they would be readily accepted by the people since he was a trusted companion of the Prophet. Some of the forgers, either out of repentance or due to a prick of conscience, have acknowledged that they had fabricated traditions in his name.

It is obvious that such traditions, which have no historical validity, have originated from the sources of the Shias, who believe that their Imams (divine leaders) were chosen by God and had unlimited power and knowledge. Anyone doing research on the life of Jafar as-Sadiq (A.S.) should ignore such frivolous stories. One must take into account only the important and authentic facts of his life.

Four facts show us that from his childhood, Jafar as-Sadiq (A.S.) was favoured by nature:

1. He was born very weak, but did not suffer from any childhood disease, which were common in those days. After two years he became quite robust and strong.
2. Jafar as-Sadiq was born in a well-to-do family. His father and grandfather were men of substance in Medina.
3. His father, Mohammed al-Baqar, was a learned man and his mother, Umme Farva, just like all the female

descendants of Abu Bakr, the first caliph of Islam, was also an educated lady.

4. His father and mother started teaching him when he was only two years of age.

It is said that a child's retentive memory is best when he is between two to six years of age. Some authorities on education are of the opinion that between the ages of two to six a child can be taught a foreign language in addition to his or her own mother tongue.

As a rule, children whose fathers and grandfathers are learned persons, have better chances of becoming learned than those who come from ordinary families. The father and grandfather of Jafar as-Sadiq were great scholars. His grandfather, Ali ibn Husain, had written a number of books whose names have been mentioned by Ibn Nadim in his book, *Al-Fehrist*, although there is no trace of them today.

Jafar as-Sadiq had many brothers and sisters. His parents educated them all, but they paid special attention to him from the time he was 2 years old, because of his supernatural intelligence and wonderful memory.

Shias believe that it is an attribute of an Imam to have supernatural intelligence and memory. Since Jafar as-Sadiq (A.S.) was an Imam, he had supernatural intelligence and memory. This is not a valid argument. There have been many children in the world, who had supernatural intelligence and memory, but they were not Imams. Ibn Sina and Abu Ala al-Muarra in the East and Tacitus in the West are the best examples. From childhood they were highly intelligent and had wonderful memories. They remembered whatever they heard or read only once.

The midwives of Medina not only delivered babies, but worked as surgeons as well. They circumcised boys. The midwife who delivered Jafar as-Sadiq also delivered his younger brother two years later and circumcised him.

For this delivery she received only 3 dinars. When she

had delivered Jafar as-Sadiq she had received 5 Dinars, because he was the first boy born in the family. The birth of the first boy in a noble Arab family was considered to be a joyful event.

In those days sword practice was very popular in Medina among the children as well as the grown ups. It is said that Jafar as-Sadiq used to dance with other boys, holding a small sword in one hand and a stick in the other, while his mother, Umme Farva, recited the following verse:

*Abshiro, Habban Habba;
Qadda-hu numa;
Wajja-hu badr us-sama.*

(Good news to you; my beloved has grown up or has become tall and his face is as beautiful as the moon in the sky)

The old family house of Jafar as-Sadiq, which was on one side of the mosque of the Prophet (SAW) and where his great-grandfather, Husain ibn Ali, was born, was demolished at the time of the expansion of the mosque. From the money which was received from the public treasury in compensation, a plot of land was purchased by the side of a newly constructed road, called Musqa and a house was built there. That house, just like all the new houses of Medina, was constructed by Iranian architects.

The courtyard of that house, which was probably planned by his great grandfather, Ali ibn Abi Talib, was spacious and provided a good playground for children. After finishing his lessons Jafar as-Sadiq used to play there with his friends.

There are different reports as to when he started attending classes, which were run by his father. Some say that it was at the age of 3 years, and others say at the age of 5. One of the Muslim historians of North Africa, Mohammed Abu Bakr, well known as ibn Abi Rindega, who was born in 451 of the Hijra and died in 520 Hijra has written in his book, Ikhtisar, that Jafar as-Sadiq started attending classes when he was ten years old. This report seems to be quite logical. Before that time he did not attend any classes. Mohammed al-Baqar taught him at home.

IMAM MOHAMMED AL-BAQAR AND OMAR IBN ABDUL AZIZ

In spite of his best efforts, Ali ibn Abi Talib (A.S.) could not create among Muslims any interest in knowledge. The apathy and indifference to learning was due to uninteresting methods of teaching. Jafar as-Sadiq changed the method and succeeded in spreading knowledge among Muslims.

Mohammed al-Baqar used to teach in the mosque of Medina, which was built by Prophet Mohammed (SAW) and his companions, when they emigrated from Mecca to Medina. It was expanded during the rule of his successors. He taught history, grammar, rijal and literature, which consisted of poetry only. In those days no attention was given to prose. It may be noted that there were no books of prose available in Arabic except those which were written by Ali ibn Abi Talib (A.S.) and Ali ibn Husain (A.S.).

Mohammed al-Baqar gave lectures without consulting books. His students also had no books, but they had very strong memories and could memorize their lessons easily. Whatever they could not memorize they wrote down on a wooden board and copied the notes on paper carefully at home. They could not afford to use a lot of paper as it was a rare commodity in those days. The advantage of writing on a wooden board was that it could be cleaned off and used again.

Teaching without books may seem strange today, but in the past teachers in the East and West always taught without books. Even today teachers who trust their memory teach their students without consulting books.

The subjects which were taught by Mohammed al-Baqar were not very broad. Only literature was a comprehensive subject. History consisted of what was in the Bible and the Quran. Greek and Syrian books of history were not translated

into Arabic and the history of Europe could not be taught. Jafar as-Sadiq (A.S.), who had a very strong memory could memorize whatever was taught in the classroom.

Shias believe that Mohammed al-Baqar was called al-Baqar meaning one who splits and opens, because he introduced many new chapters of knowledge. In our opinion he was known as al-Baqar because at the end of the first century Hijra when Jafar as-Sadiq was about seventeen or twenty years of age, he introduced geography and many other western sciences in his institute.

Some people think that the Arabs had learnt geography from the books written in Syriac, an ancient language of Syria. This is not correct. They learnt geography when they conquered and occupied Egypt and found the books of Ptolemy long before the books in Syriac were translated into Arabic.

In addition to geography, Ptolemy had also written books on astronomy. Since Jafar as-Sadiq knew astronomy, he must have studied the books on astronomy written by Ptolemy when he was a student.

The Arabs knew the constellations of the stars and had given a special name to each of them. It is not known who gave those names to them and when. They had some knowledge of astronomy before they went to Egypt. It can, therefore, be said that Jafar as-Sadiq did not learn astronomy by reading the books of Ptolemy. They only helped him in his study of that subject.

Unfortunately we do not have any historical evidence to show that Mohammed al-Baqar had introduced western sciences in his classes. The following facts have led us to draw that conclusion:

1. It is unthinkable that Shias began calling Mohammed bin Ali "al-Baqar" only after he introduced two new subjects - geography and astronomy. He must have introduced many western sciences to be called al-Baqar.
2. Jafar as-Sadiq taught western physics and philosophy

in addition to geography and astronomy. It is an established fact that at that time the books of Greek philosophers on these subjects were not translated into Arabic. The translators had only just started translating the books from Syriac into Arabic, without even understanding the meanings of scientific and philosophical terms.

We can, therefore, infer that Mohammed al-Baqar (A.S) was also teaching those subjects and Jafar as-Sadiq learnt them from his father. When he grew up he made his own discoveries. Had he not learnt them from his father, he could not have taught them to his students.

Uhlhas believe that Jafar as-Sadiq had the knowledge of those sciences because he had Ilm-e-Ladunni or God-given knowledge. They explain that a man's subconscious mind is quite different from his conscious mind. It is the treasure house of knowledge of mankind and of the world. Modern science lends support to this theory. Biological studies have gradually proved that every group of cells in the human body knows whatever is knowable from the beginning of the world till today.

They contend that when someone is chosen as a Prophet or as an Imam, the curtain which hangs between his conscious and subconscious minds, is lifted and he can make use of the knowledge which is stored in his subconscious mind. They explain the assignment to Mohammed ibn Abdullah (SAW) of the mission of Prophethood in the same way. They say that he did not know how to read and write and had no knowledge of anything. When on the night of his assignment, Angel Gabriel came in the cave of Hira and asked him to read, he said: "I cannot read." When Gabriel asked him again, the curtain which was between his conscious and subconscious minds was removed and he could read instantly. He also acquired the knowledge of everything in the world.

They also state and explain that subconscious mind comes in two layers: Primary and Final. We, the common people, come into contact with the primary layer of our sub-

conscious mind when we are sleeping. As a result, we have dreams. Sometimes we come in contact with our subconscious mind while we are awake. Whatever inspirations we receive originate from the primary layer of our subconscious mind. But the Prophets of God and Imams are in touch with the final layer of their subconscious minds, which is the reservoir of the knowledge of the world.

It is what the Shias mean by Ilm-e-Ladunni. They believe that Jafar as-Sadiq had the knowledge of what was stored in the final layer of his subconscious mind.

A historian, however, needs authentic historical evidence to discover how a person like Jafar as-Sadiq, who had not travelled outside Arabia, could teach philosophy and western sciences at a time when no Arab had ever taught those subjects before. (In his middle age he did go many times to different places outside Arabia.)

The only conclusion we can draw is that just as the Arabs learnt geography and astronomy from Coptic scholars and Mohammed al-Baqar (A.S) taught those subjects to his students, he learnt philosophy and physics also from them and taught them to his son.⁽¹⁴⁾

In the year 86 of the Hijra, when Jafar as-Sadiq was only 3 years old, Abdul Malik bin Murwan died and his son, Walid bin Abdul Malik, became the caliph. By his first order the new caliph removed Hisham bin Ismail and appointed in his place Omar bin Abdul Aziz, a handsome young man of about 24 years of age, as the governor of Medina.

Damascus was the seat of the Umayyad caliphs. They followed court traditions of Byzantine emperors and decorated themselves richly like them. Governors, appointed by the caliphs, had their own courts in their seats of government, lived ceremonial lives and strictly observed all the official formalities.

(14) History does not record the presence of a single Coptic scholar when Egypt was conquered by the Muslims.
See Introduction.

When Omar ibn Abdul Aziz took over as the Governor of Medina he did not observe any formality and went straight to the mosque of the Prophet (SAW) to see Mohammed al-Baqar, who gave his lectures every day, except Fridays, in the part of the Mosque which was reserved for nocturnal prayers. Addressing the Imam he said: "I was informed that you are busy teaching your students. It would have been most appropriate for me to see you at your residence, when you had returned from the mosque, but I was so anxious to see you that I could not wait. I have come to offer my services to you. I shall serve you as long as I am in Medina."

It may be noted that during Umayyad rule the descendants of Ali ibn Abi Talib could live only in Medina. If they went to any other place, they were harassed and subjected to undue pressure. They were even in danger of being killed. Ali ibn Husain and Mohammed al-Baqar could live peacefully and teach in Medina because the residents of that city had great love and respect for them and Hisham or any other Governor would not dare harm them.

In the third year of his reign (88 A.D) Walid ibn Abdul Malik decided to expand the Mosque of Medina. It had been expanded before, but the houses of some wives of the Prophet, who were alive at that time and living near the mosque, could not be demolished. His last wife died in A.H. 88. From then on there was no obstacle left for its expansion.

The Umayyad caliph instructed Omar bin Abdul Aziz to demolish the houses of the wives of the Prophet (SAW) and to purchase and demolish some other neighbouring houses as well so that each side of the mosque would be 200 zirah and the total area of the mosque 40,000 sq. zirah (One zirah is equal to 40 inches).

Omar bin Abdul Aziz instructed Iranian workers to proceed with the construction in such a way that the lectures of Mohammed al-Baqar, for whom he had great respect, were not disrupted.

When the expansion began, Jafar as-Sadiq was about

five years of age. If he was born in the year 80 Hijra, as some biographers have written, he was about 8 years of age. He asked his father's permission to help in the construction of the mosque.

Mohammed al-Baqar said: "You are so small; how can you help in construction work?"

Jafar as-Sadiq replied: "Just like my grandfather, I want to make my contribution in the construction of this Mosque."

Hearing that reply Mohammed al-Baqar allowed him to help the workers.

Some people have remarked that Jafar as-Sadiq was only interested in playing with bricks, mud and clay, as most children are. But he did not want to play and have fun. In spite of his small age and limited strength he did help the workers as much as he could. It was noticed that when children would come and ask him to play he would refuse to do so and say: "I cannot play now; I am helping in the construction work." It was only after the work would stop and he would finish his lessons that he would go out and play with his friends.

Childrens' games throughout the world are, more or less, the same. In very few cities we see children playing a new game. The children of Medina had two special games which were found nowhere else. If they were played in any other Muslim country they were surely taken from Medina.

One game, which the children of Medina played and had educational value, was that Jafar as-Sadiq would sit and play the role of a teacher and other children would sit around him as his students. He would then give the description of a fruit—its colour, size, taste etc., and ask the children to name it. This would make them think. The boy who was first to tell the name of that fruit would become the teacher and Jafar as-Sadiq would leave his place and join the ranks of the students. The new teacher would give the description of another fruit and ask the children to name it. Jafar as-Sadiq being exceptionally bright would immediately tell the name of the fruit and become the

teacher again.

Social environment and family background play a great part in moulding the character of a child. Jafar as Sadiq belonged to a noble family of Medina and was brought up by such righteous persons as Ali ibn Husain, Mohammed al-Baqar and Umme Farva. Some of his playmates, even though they belonged to noble families, would not hesitate to tell lies. Sometimes one of them would not vacate his place even if Jafar as-Sadiq gave the correct answer. He would make excuses and insist that the answer was not correct. Jafar as-Sadiq would know that he was not telling the truth. It would hurt him, but he would not quarrel with him. Sometimes he would leave the place and go home.

After some time the children would feel that the game had no charm since no one among them was as bright as Jafar as-Sadiq. They would go to him and ask him to play again. Jafar as-Sadiq would agree to play with them on condition that they would not tell any more lies. The children would promise to be truthful and he would play with them again.

Another game which was played by the children of Medina was that one boy would act as the teacher and the rest as his students. The teacher would utter a word, say Ash-Sharaya, meaning a she camel with a long neck. One of the students would shout ash-Sharaya and repeat the word again and again. To confuse the boy the teacher would utter some other words rhyming with the word ash-Sharaya, such as, al-Daraya, as Safaya al Kifaya etc. whether they had any meaning or not. If the student got confused and shouted a word other than ash-Sharaya he would be out of the game and another boy would take his place. The teacher would start the game again by uttering a different word. Jafar as-Sadiq participated in this game of shouting as well as other games in which the children had to run about.

In the year 90 of the Hijra a terrible epidemic of small pox spread in Medina. Many children were infected. Jafar as-Sadiq was at that time about nine or ten years of age. Umme

Farva left Medina with her children and went to Tinfisa, which was in the suburbs of Medina. In those days the only way to save oneself and one's family from small pox was to leave the place where it was raging and go to a safe place.

Some places become well known by the names of products made there. In Tinfisa very fine mats were made from the leaves of a kind of grass. Those mats were called Tinfisa. Therefore, the village itself became famous by the name of Tinfisa. This village, just like many other places which were famous in the 1st and 2nd centuries Hijra, does not exist today but the people of Medina know its location.

Medina is situated in the centre of a desert, but it had many fine summer resorts, where well-to-do families used to go and stay during the summer season.

When Umme Farva settled down in Tinfisa, she was relieved and thought that the children would be safe there. She did not know that she herself would catch the dreaded disease. When she fell ill she did not realize, as is usually the case, that she had small pox, until the first blister appeared on her body. Being an educated lady she was not so much concerned for herself as for her children. She sent them immediately from Tinfisa to another place.

Mohammed al-Baqar was informed of his wife's sickness. Since it was a dangerous disease he had to suspend his classes and go to Tinfisa. Before his departure he went to the grave of the Prophet (May Allah bestow His Blessings on him and his Progeny) and prayed for his wife's recovery.

When Umme Farva saw her husband she said to him: "Why have you come here? Did no one tell you that I am suffering with small pox? I am afraid that you may contract the disease."

Mohammed al-Baqar replied: "I have prayed for you at the tomb of the Prophet. Prayers at that place are very efficacious. I am sure that you will fully recover from this disease and I will not catch it."

Umme Farva did recover from that dreadful disease, as Mohammed al-Baqar had said. Her recovery was actually a miracle. Elderly people rarely fall a victim to this disease and if they do, their chances of recovery are very remote indeed.

Shias believe that an Imam has exceptional knowledge and power. Since Mohammed al-Baqar was an Imam, he himself cured his wife. However, a historian does not subscribe to such beliefs. At that time it was not possible even for a physician to cure a patient of small pox. The recovery of Umme Farva was an exceptional case. After her recovery she returned to Medina, but the children were not called back till there were no fresh cases of small pox in the city.

In the same year, or the next, Jafar as-Sadiq was sent to study at his father's college. All the chroniclers have written that he joined the college when he was ten years of age. This college was a centre for higher education and learning. Therefore, his higher education started at the age of ten, which was not unusual for a boy of his intelligence and memory. We can mention the names of many western scholars, who, at the age of ten, studied subjects which are taught in universities.

JAFAR AS-SADIQ (A.S) IN HIS FATHER'S ACADEMY

When Jafar as-Sadiq (A.S.) joined the college, his father had just started teaching Geography of Ptolemy. The day he attended his class he heard, for the first time, the name of *Almagest*, the book on geography and astronomy written by Ptolemy, who lived in the second century A.D. He also heard for the first time from his father that the earth was round.

Some people believe that it is because of Copernicus of Poland (1473-1543 A.D.), that we know that the earth is a sphere. As a matter of fact all the learned people of ancient Egypt knew that the earth is a sphere.

There is a book in the library of the Vatican, which was written one thousand years before Copernicus was born. In this book it is clearly mentioned that the earth is a sphere.

Before Copernicus had expounded his theory that the earth and planets rotate around the sun, Christopher Columbus had started his westward journey towards the island of spices knowing that the earth is round.

Before the theory of Copernicus was published Magellan of Portugal, who was in the service of the King of Spain, had sailed from Seville, a port of Spain, and went round the world. He himself was killed by the people of the Philippines but his companions returned to Spain after three years. This was the first time that it was definitely established that the earth is a sphere.

Ptolemy wrote in *Almagest* that the earth is the centre of the universe and that the sun and planets go round it. But Copernicus stated that the sun is the centre of the solar system and the earth and other planets rotate around it.

In the year 91 of the Hijra two important events took

place. The first was that a student of Mohammed al-Baqar (A.S.) while returning from Egypt brought, as a present for him, a representation of the solar system which was made from sawdust. In Egypt, statues and many other fine objects were made from sawdust which was first turned into a kind of dough. Visitors to Egypt took them home as souvenirs. Outside of Egypt they were considered valuable items and were in great demand.

The representation of the solar system brought by Mohammed bin Fatah from Egypt consisted of a round disc or stand which represented the earth. On the disc was a globe, which represented the sky. On this globe were drawn forms of 48 clusters of stars or constellations, which were known to Ptolemy. The names of the constellations were written in Egyptian language. It was not Ptolemy but astronomers from other nations, who saw the figures of different objects in these haphazard groups of stars and gave them the names of these objects.

In the middle of the globe was a belt of 12 groups of stars, from Aries to Pisces, representing the signs of the zodiac. The sun, moon and the planets, which were believed to rotate round the earth, were also clearly shown on this globe.

Jafar as-Sadiq (A.S.) was only 11 years of age when this representation of the heavenly bodies was brought to Medina from Egypt. The day he saw the globe he rejected the theory of Ptolemy. He said that when the sun, during its course round the earth, passes through the 12 constellations in one year and remains in each constellation for 30 days why does it disappear from sight during the night. It should remain visible in each constellation for 30 days.

This was a very strong objection by a boy of 11 years of age. But without understanding the logic of it, Mohammed bin Fatah, who had brought the present from Egypt, replied: "Ptolemy says that the sun has two movements. One of its movements is that it crosses the sign of the zodiac and goes round the earth in one year and the other movement is that it goes round the earth in one night and one day, as a result of

which we see it rise in the east and set in the west.

Jafar al-Sadiq remarked that those two movements were not compatible. When the sun had to pass through the sign of the zodiac in one year and stay in each constellation for 30 days how could it change its course and go round the earth in 24 hours?

Mohammed bin Fatah said: "The sun leaves the belt of 12 constellations at night and rises in the east and sets in the west in order to create day and night."

Jafar as-Sadiq retorted: "It follows from what you say that only in the daytime the sun is in the sign of the zodiac. If this is the case why do we not see the sun at night?" Mohammed bin Fatah replied: "I do not know why we do not see the sun at night. Most probably it casts a thick veil on its face."

Ptolemy, the geographer and astronomer (he should not be confused with the Ptolemies, the kings, who ruled Egypt from 323 B.C. to 30 B.C.) was born in Alexandria in the 2nd century B.C. He enriched his knowledge by reading the books of great scholars of Greece in the library of Alexandria. He borrowed from Euclid, the great mathematician, the idea that the sun rotated round the earth and then developed his own theory known as the Ptolemaic System. From the 2nd century B.C. to the beginning of the 8th century A.D. thousands of scholars in the East and West had read that theory but none of them discovered that it was wrong.

The great library of Alexandria was established in the 3rd century B.C. and burnt and destroyed in the 7th century A.D. Thus, for a period of 900 years, Alexandria remained a centre of knowledge and learning of the world. It produced great scholars and philosophers. All of them, without exception, accepted the theory of Ptolemy to be correct, but a small Arab boy in Medina, which, in the beginning of the 8th century A.D. was neither a centre of learning nor a capital of any state, stood up and proved that the whole Ptolemaic System was based on wrong premises. No doubt, he had more intelligence and better understanding, so far as that scientific problem was concerned,

than all the philosophers of Alexandria and the rest of the world.

Due to his age, Jafar as-Sadiq might not have had any social sense and most probably no economic flair, since at that early age a boy does not have to earn his living and support a family, but he had the mental capacity to understand complicated scientific problems, which others lacked. They were so lacking in the power of comprehension and perception that even after he explained to them that the Ptolemaic System was wrong they did not try to understand what he had said. Such is always the fate of people who are, in wisdom and intelligence, head and shoulders above those with whom they live. The common people do not and cannot see their surroundings with the eyes of a farsighted man. They use their brain and their senses to serve and satisfy their bodily needs only. That is why observations of the wise and intelligent people appear worthless to them. Sometimes they consider them crazy. Millions of people had seen ripe apples falling from trees to the ground, but when Newton saw an apple falling, he started wondering why the apple fell to the ground and discovered the Law Of Gravitation.

Today all flights in the Solar System are based on the Law of Gravitation. The people who put their feet on the surface of the moon were indebted to Newton, who had discovered this law. However, this great discovery by Newton was, in the eyes of common people, of no significance at all.

The Daily News of London, which was the first newspaper of England, did not publish this news. No English paper published it for years, but a case of murder or theft appeared in all of them. Such news was considered more important because it had a direct bearing on the lives of the people.

Only some scholars knew that Newton had made that great discovery, but they were jealous of him and did not want to publicise it. Only after the sense of jealousy had subsided did the people learn about that discovery for which Newton was finally knighted.

Some people might say that it is not a strange thing that

the people of Medina did not pay attention to what Jafar as-Sadiq (A.S.) had said when in the 17th century A.D. the people of England did not pay any attention to Newton's discovery. But there is a vast difference between the two. The common people of England in the 17th century A.D. were illiterate and to them a scientific discovery was of no significance, but the people, who attended the classes of Mohammed al-Baqar (A.S.) were learned people. They should not have behaved the way they did. They should have discussed the problem with Jafar as-Sadiq, accepted his arguments or rejected them by means of logic and reason, then tried to find out the cause of the interchange of day and night themselves. The level of their intelligence and understanding was so low that they did not understand his objection and the strength of his arguments. They treated him like a child and ignored him and his objections.

It is a fact that after the age of 7 children become very inquisitive and want to know everything. Sometimes they ask so many questions that their parents get bored and confused. If they do not receive satisfactory answers they go on asking questions. It can be said that because of his age, the objections of Jafar as-Sadiq (A.S.) were not taken seriously. Anyway, it is doubtful that they would have been taken seriously even if they were raised by a grown up person.

In the middle of the 15th century A.D. Copernicus had said the same thing that Jafar as-Sadiq had said in the 8th century A.D., but no one accepted his views. He was fortunate that Poland, where he lived, was not under the jurisdiction of the Court of Inquisition when he published his theory of rotation of the earth and planets round the sun. This was the same organization which had forced Galileo to repent and beg for mercy for having said that the earth rotated round the sun. If he had been in Germany, France, Spain or Italy, he would have been arrested. At that time the Grand Inquisitor was a very cruel and narrow minded person by the name of Torquemada. He used to arrest Christians for trivial things, torture them, obtain their confession by force and then punish them.

Aristotle was a great thinker and philosopher. His

books, *Arganan* and *Physics*, are the most precious literary treasures of mankind, but his theory that the earth is stationary and the sun and stars rotate around it, delayed the progress of the science of Astronomy and kept mankind in the darkness of ignorance for 1800 years.

The two great supporters of his theory were Ptolemy, the Egyptian Astronomer, and the Christian Church. The leaders of the Church, not only put the seal of confirmation on his theory, they made it a doctrine of Christian faith. They contended that it was an undeniable fact that the earth was centre of the universe, otherwise Jesus Christ, the son of God, would not have been sent here.

No one could challenge the theory of Aristotle for centuries when it was supported by the Church. It was only Nicholas of Cusa, a Cardinal of the Catholic Church of Rome, who had the courage to reject the theory of Aristotle. What made him contradict Aristotle was that he had read some books by the old philosophers of Greece in the library of Vatican which had convinced him that Aristotle was wrong.

Ordinary priests were not allowed to enter the library. Only bishops and cardinals, who were high officials of the Catholic Church, could go there and read books. Since Nicholas was a Cardinal and knew Greek language he used to go to the library and read books of Greek philosophers. He was impressed by the theory of Aristarchus of Samos about the rotation of the earth round the sun.

From the Vatican he returned to Germany. In the year 1460 A.D. he wrote an article on the annual rotation of the earth around the sun. Since printing facilities were not available he made some copies of his article by hand and distributed them.

Nicholas had no knowledge of astronomy and mathematics and could not give any scientific reasons in support of the theory which was not his own. He had only repeated the words of the Greek philosopher, Aristarchus. Therefore, it was not taken seriously by the people and did not attract attention of the Vatican. Most probably his article was

taken to be a joke, since it disputed the common observation of the people. Who could deny that the earth was not stationary and who could dispute that the sun and the stars were not orbiting round the earth?

If the article of Nicholas of Cusa had reached the Vatican, it would have created a problem for him. It would have cost him at least his clerical position and his red cap. The rank of a Cardinal is the second highest rank in the hierarchy of Catholic Church.

The credit for the discovery of the movement of the earth round the sun was given to Copernicus, who was born 13 years after Nicholas had written his article. Copernicus was an astronomer and mathematician. He proved his theory by facts and figures.

In this context we would like to point out that the nations of Europe and America are indebted to the library of the Vatican for their progress in arts and sciences since a great part of the knowledge of the Greeks and Romans reached them through this library.

There were also some other libraries in Europe, through which the knowledge, accumulated by the Greeks and Romans, was transferred to the Europeans, but none of them played as important a part in this noble task as the library of the Vatican, which is the richest of them all, so far as books in Greek and Latin are concerned. There is no doubt that without this library most of the old books and manuscripts, which have reached us would have been lost.

Most countries in Europe had always been at war. Soldiers had no respect for books at all. They were burnt and destroyed everywhere. But the books in the Vatican library remained safe because the belligerent warring parties, who were Christians, respected their religious centres and did not attack them. Moreover, the residents of the religious places loved books and protected them from dust and insects.

In Europe most of the kings and nobles were illiterate

and not interested in books at all. During some periods it was considered an insult and a disgrace for kings, chiefs and nobles to be literate. One can imagine the condition of the common people when the ruling class was illiterate. Only religious places were centres of knowledge and learning and each of them had a library. (See Translator's Note below).

Among the Greek scholars who tried to find out the cause of interchange of day and night was Euclid. He lived in Alexandria, Egypt, about 450 years before Ptolemy. He did not believe in the story that the sun was the lamp of Zeus. His theory, which was discovered in the manuscripts after his death, reads as follows: "The sun, which rises in the morning is the same sun which sets in the evening. Since the earth is a sphere it has to go round it. That is why it rises and sets every day."

Translator's Note: The Catholic Church was deadly against astronomy, philosophy and other sciences and did not keep and preserve the books written by the philosophers of Greece, Rome and Alexandria. The Greek philosophers would have been burnt alive if their books were written when Catholicism reigned supreme in Europe. Muslim scholars had translated those books into Arabic and thus, preserved them. Please see the following extracts.

"Muslims are the real source of civilization in Europe today. The Europeans were living like savages and had no noble quality and character. It was by the contact with Muslims that they became civilized. When the great personalities of Europe were proud of their ignorance and illiteracy and there was not a single library in Europe, Muslims had big libraries and large centres of knowledge and learning. It was Muslim civilization and culture, which made them human beings."

"In the year 1130 A.D. a translation bureau was established in Italy under the supervision of Grand Bishop, Raymond, where all the books of famous Muslim writers were translated. These translations opened the eyes of the Europeans and the gate of a new world. In that translation bureau not only were the books of Mohammed Zakariya Razi, Al-Baqasis, Ibn Sina, Ibn Rushd Andulasi, translated into Latin, but the books of Galen, Democritus, Plato, Aristotle, Euclid, Archimedes, Ptolemy and others, which were translated by the Muslims from Greece into Arabic, were translated from Arabic into Latin." (Islam by Joles Labeume, Persian translation, pp.165-169.

Euclid lived in the 3rd century B.C. when knowledge had spread through Greece and Alexandria and Plato and Aristotle had prepared the minds of the people to tolerate views of philosophers and accept scientific facts. However, he was afraid to express his views publicly about the cause of the succession of day and night. His fears were justified. He was living under the rule of Ptolemy I, who was an officer of Alexander the Great. This man was a patron of arts and sciences. He had established the great library of Alexandria. He had given full freedom to the learned people. He had told them, however, that they could express their views on any subject except on religious matters.

He had declared that science could enter every field and cover all subjects except the religion of the people.

The theory of Euclid was definitely against the belief of the people that the sun was nothing but the lamp or fire of Zeus.

The people, who lived in independent Greek city states, enjoyed more freedom of thought and expression than the people of Alexandria. Euclid and Pyrrho were contemporaries. Pyrrho, who lived in one of the city states of Greece, not only criticised Plato and Aristotle, but he openly attacked the established religion of Greece. He said that the stories about the gods were nothing but myths.

Pyrrho was a Skeptic (he was the founder of the school of Philosophers known as Sceptics). That philosophy was one of dogmatic doubts and was highly destructive. He said that all religious principles and doctrines were doubtful. There was no religious principle and doctrine which could be confirmed or denied. He did not, however, say anything on the alternation of day and night.

MOHAMMED AL-BAQAR (A.S) AND WALID BIN ABDUL MALIK

In the year 91 of the Hijra, when the representation of the solar system was brought from Egypt, the educational institutions of Medina enjoyed greater freedom than the universities of Europe. This state of affairs continued till the beginning of the first and second Renaissance periods.

In Medina, Jafar as-Sadiq openly criticised the Ptolemaic Theory. If at that time any student in Europe had done that he would have been accused of heresy and excommunicated. More strict laws were passed in later periods. Under the law enacted in 1183 at Verona, Italy anyone accused of heresy was beheaded. In the thirteen century heretics were burnt at the stake.

In Muslim countries there was greater freedom of thought and expression. Even during the periods of some very repressive Abbasid regimes a Muslim scholar had greater freedom to express his views than a scholar in Europe. In some very controversial issues, e.g. the Eternity of the Quran, some Abbasid Caliphs took very severe action against those who opposed the official view. They did so to protect their own power and position. In other matters they left the learned people free to say what they liked.

In the year 1233 A.D. Pope Gregory IX laid the foundation of Inquisition, a Roman Ecclesiastical Court. This was the beginning of burning people whose statements or writings showed that they were heretics. Universities were main targets of this organization. If any professor or student said anything which was against the traditional belief he was immediately arrested and thrown into prison, where he languished till his turn came and he was tried and punished. This organization continued to function till Napoleon I dissolved it in 1808. After

Napoleon was defeated it was revived in Spain in 1814 and continued to function till 1834 A.D.

The real cause of regression of Europe during the Middle Ages and progress and advancement of Muslim countries was that the learned people in Europe were not free to express their views like their counterparts in the East. The light of knowledge which was shining in the East could not dispel the darkness in the West.

No branch of knowledge except medicine of the East was allowed to be studied in Europe. The first book, which was translated into Latin, was Arjozah of Ibn Sina or Avicenna. There was no professor of medicine in Europe who had not learnt it by heart.

The Organization of Inquisition would not allow the people of Europe to learn the literature of the East. They were afraid that the verses of Eastern poets would open their minds. Similarly they did not want the students of the Universities of Europe to learn Astronomy of the East. They wanted them to learn what was officially propagated by the Catholic Church.

In the year 91 of the Hijra a very important event took place. Walid bin Abdul Malik, the Umayyad caliph, came to Medina. He was travelling with the pomp and show of Byzantine emperors. Officials travelled ahead of the caliph to make arrangements for his stay and entertainment.

Omar bin Abdul Aziz, the governor of Medina, went 15 farsangs (one farsang is equal to 6.24 kilometres) out of the city to receive him. Before leaving Medina he had furnished and decorated the best house for the caliph's stay. He had also made suitable arrangements for accommodation of those who were travelling with him.

The day the caliph entered Medina it was announced that he would hold a public reception and receive anyone who wished to see him.

Omar bin Abdul Aziz knew that Mohammed al-Baqar (A.S.) would not see Walid, because he did not recognize him

as the rightful successor of the Prophet. He went to see Mohammed al-Baqar and asked him if he would see the caliph. The Imam replied that he would not see Walid.

Omar bin Abdul Aziz said: "This city is associated with you and your family and it is like your house. Walid is coming here as your guest. Whatever he is, he is a Muslim. You will surely see a guest who comes to your house, even if he is a non-believer."

Mohammed al-Baqar replied: "The question of a guest coming to my house is quite different from the coming of Walid to Medina. He has put on the robe of a caliph and is coming as the owner and master of Medina."

Omar bin Abdul Aziz remarked: "I know why you do not want to see Walid. You are afraid that the people of Medina may think that you have sworn allegiance to him."

"Yes," replied Mohammed al-Baqar (A.S.)

Omar said: "One of your ancestors signed a peace treaty with an Umayyad caliph, though unwillingly, but for the good of the Muslims, but no one said that he had taken oath of fealty to him. If you see Walid no one can say anything."

Replied Mohammed al-Baqar (A.S.): "I do not like to see him."

Omar said: "Walid has a secret organization, which was established by Muawiyah. Every Umayyad caliph makes use of it for gathering information. He must have been informed that I have great love and respect for you and your family. If you do not see him he would think that my devotion to you has made you proud. He will surely remove me from the Governorship of Medina."

Mohammed al-Baqar (A.S) said: I shall see him against my will. I do not want you to be in trouble for our sake."

Omar asked: "Can I tell him that you will see him tomorrow?"

"Yes, you can", replied Mohammed al-Baqar (A.S.)

When Mohammed al-Baqar arrived, Walid stood up to receive him. He seated him in front of him as if he was his equal in status. The Arabs paid great respect to the direct descendants of tribal chiefs. Mohammed al-Baqar was a direct descendant of the chief of the tribe of Bani Hashim. Besides, he was a great scholar. For that reason also Walid had to respect him. Most of the Umayyad caliphs were not interested in knowledge and learning, yet they always made a show of their love and respect for the learned people.

When two persons have nothing to discuss they talk about some trifling things, such as the weather, crops etc. Walid asked Mohammed al-Baqar about the condition of the harvest. In that year, there was heavy rainfall and the farmers hoped to reap a bumper crop.

Mohammed al-Baqar gave him a cursory reply.

Walid asked him about his personal property and how much it was worth.

Mohammed al-Baqar said that he had a small farm, the produce of which was enough for the needs of his family.

Walid said: "If you accept, I can offer to you a big estate inside the city of Medina or outside, wherever you like, so that you may enjoy it as long as you live and after your death it may pass on to your children."

Mohammed al-Baqar (A.S.) replied: "My farm produces enough food, which is sufficient for our needs. As regards my children, they will work and earn their living themselves."

After that short discussion Mohammed al-Baqar got up, bade farewell to Walid and left.

The main object of Walid to visit Medina was to see how his orders to expand the mosque were being carried out. He saw and approved the work of expansion of the court-yard. Then he entered that part of the mosque where Mohammed al-Baqar (A.S.) was holding his classes. His son, Jafar as-Sadiq was

also there.

When Mohammed al-Baqar (A.S.) saw Walid he stopped his lecture, but the caliph requested him to continue. That day he was teaching geography and astronomy to his students. Walid had no knowledge of the subjects. He stood for some time and listened silently to his lecture and then he asked: "What are you teaching?"

"I am teaching geography and astronomy," replied Mohammed al-Baqar.

"What do you discuss in these subjects?" asked Walid.

"In these subjects, I teach my students about the earth, sun, moon and the stars," replied Mohammed al-Baqar.

When Walid saw Jafar as-Sadiq (A.S.) in the class, he asked the Governor of Medina: "What is this small boy doing here?"

"He is the son of Mohammed al-Baqar and is one of his students," replied Omar bin Abdul Aziz.

"What can this boy get out of these lectures?" remarked Walid.

"Do not judge him by his age. He is more learned than any of the students here," replied Omar bin Abdul Aziz.

As desired by him Jafar as-Sadiq went to Walid, who looked at him carefully and remarked: "He is still a child; how can he study in this class?"

"Test him and find out for yourself," said Omar bin Abdul Aziz.

"What is your name?" asked the caliph.

"My name is Jafar," replied Jafar as-Sadiq.

Walid asked: "Can you tell me who was Sahib ul-Mantiq?" (Who formulated the rules of logic).

"It was Aristotle. His students had given that name to him," replied Jafar as-Sadiq without any hesitation.

The caliph then asked: "Can you tell me who was Sahib ul-Maz?"

Jafar as-Sadiq replied: "It is not the name of any person. It is the name of a group of stars. They are also known by the name of Mumsuk ul-Ana." (In the modern books of astronomy this group is called Orion).

Walid, who was very surprised, asked Jafar as-Sadiq: "Do you know who was Sahib ul-Sawwak?"

"Abdullah bin Masud, who performed certain duties assigned to him by my grandfather, the Prophet of Allah (SAW), was known by that name," replied Jafar as-Sadiq.

Walid exclaimed: "Bravo, Bravo", many times. Turning to Mohammed al-Baqar (A.S.) he remarked: "Your son will be a great scholar."

Walid bin Abdul Malik was not wrong. Jafar as-Sadiq emerged not only as a great scholar, but the greatest scholar of his time.

Sahib Ibad, who died in the year 385 of the Hijra and was buried in Isphahan, has written that after Prophet Mohammed (May Allah bestow His Blessings upon him and his progeny) Islam did not produce a scholar greater than Jafar as-Sadiq (A.S.)

No one can challenge the merit and integrity of Sahib Ibad. His opinion about Jafar as-Sadiq carries great weight. Sahib Ibad was a research scholar and a great statesman. There were more than 1,000 books in his personal library. He held the post of Minister under many Buwahid rulers, such as Sharf ud-Daulah, Baha ud-Daulah, Samsam ud-Daulah, Izz ud-Daulah, Moiz ud-Daulah, Rukn ud-Daulah and Imad ud-Daulah. Besides, he had personal contacts with more than 50 kings and caliphs of different dynasties, e.g. Abbasids, Fatemids, Samanis, Ghaznavids and Zayyars.

Some misunderstanding exists about Sahib Ibad in the minds of the people which should be clarified. Most people think that he was an Arab, because he wrote his books in Arabic.

This is not sound logic. In those days many Iranian scholars used to write books in Arabic.

He was born in Taleghan, Iran. After completing his early education in his home town, he left for Rey for further studies. When he completed his education, he was appointed as Minister in the court of Buwahid kings. This appointment in itself is a proof that he was an Iranian. His Persian verses, which show his command over the language, also provide a clue that he was from Iran.

There is another misunderstanding about him that he was a Sunni Muslim. This is totally wrong. Without a shadow of doubt he was a Shia and believed in 12 Imams. His appointment as a Minister in the court of Buwahids, who were Shias from Iran, is another proof that he was a Shia. His love of Ali ibn Abi Talib, Jafar as-Sadiq, Ali ibn Musa al-Ridha and above all, his verses in the praise of the house of Ali and 12 Imams are eloquent testimony to the fact that he was a Shia.

The following learned men and research scholars of Iran have confirmed that Sahib Ibad was a Shia:

1. Mohammed bin Ali bin Husain bin Musa bin Babuya al-Qommi, well known as Shaikh Sudduq, author of the famous book, Men La Hazer ul-Faqih, which is one of the four important books of the Shia sect, was on intimate terms with Sahib Ibad. Shaikh Sudduq was not a man who would say or write anything which was contrary to facts.
2. Shaikh Bahai Amuli, the great scholar of the Safavid period.
3. Allama Majlisi, the great scholar of the Safavid period and author of the famous book, Bihar ul-Anwar.

In addition to the above great Shia scholars many other writers and learned people have written that he was a Shia and believed in 12 Imams.

Abu Hayyan Tohidi is the most prominent scholar, who has written that Sahib Ibad was a Sunni. Tohidi was an Arab and lived in Baghdad. He was a poet and earned his living by transcribing books. To improve his lot he left his home town and went to Rey. Sahib Ibad, who used to feed about 500 persons everyday, kept him in his palace and gave him some books to transcribe.

After two weeks Abu Hayyan wrote to him that he had come to Rey to enjoy the bounty of the Wazir and not to make copies of books, which he was doing in Baghdad. This offended Sahib Ibad. He took Tohidi to be an ungrateful and insolent person and asked his servants to show him out of his palace. From that day till the death of Sahib Ibad and even after his death, Tohidi vilified him by writing invective and satirical verses about him.

THE SYSTEM OF MEDICINE OF JAFAR AS-SADIQ (A.S.)

We are not sure whether Mohammed al-Baqar (A.S.) taught medicine or not, but we know for certain that Jafar as-Sadiq taught this subject in his Academy. His research and his theories had great impact on the science of medicine. During the 2nd and 3rd centuries of the Hijra most of the physicians in the East followed the methods of diagnosis and treatment prescribed by him. In cases where the condition of a patient was such that a physician could not know whether he was dead or alive, Jafar as-Sadiq had suggested that a small incision should be made in his body, specially between his two fingers. If blood comes out it was a sign that he was alive.

There is historical evidence that this theory was put to the test in the 2nd century of the Hijra and proved to be correct.

Once Harun al-Rashid was having his lunch. His private physician, Gibreel Bakhtishu, came to see him. Addressing the caliph he said: "I have come to tell you that condition of your cousin, Ibrahim bin Saleh, is serious. I am afraid that he will expire this evening. When I was coming out of his house, Ibn Bahla, the Hindi, was going to see him."

The caliph said: "I sent for you first but you were not at home. Then I sent Ibn Bahla for his treatment."

Ibn Bahla Hindi was a rival of Gibreel Bakhtishu. He tried to take the place of Bakhtishu and become Harun's private physician, but did not succeed.

When Harun al-Rashid heard from Gibreel Bakhtishu that his cousin would die that night he became very sad and could not eat his lunch.

After an hour or so Ibn Bahla came to see the caliph. Finding him gloomy and depressed he asked what was troubling

him.

The caliph replied: "Bakhtishu was here; he has informed me that my cousin, Ibrahim bin Saleh, will die tonight."

Ibn Bahla said: "I have examined your cousin and I assure you that he will not die; he will recover from his illness."

The caliph shouted: "O Ibn Bahla! Bakhtishu is a physician, whose father and forefathers were also physicians; he is an authority on medicine. What he says is final."

Ibn Bahla exclaimed: "O Commander of the Faithful, I assure you that your cousin, Ibrahim Bin Saleh, will not die. He will recover from his present illness. If he dies tonight you can confiscate my property and take away all my slaves. On my part I promise you that if I am wrong, I will divorce my wives three times."

The courtiers who were present noticed that the words of Ibn Bahla had a soothing effect upon the caliph. He was cheered up and ordered lunch to be served again. After lunch he had two glasses of wine.

All of a sudden a messenger came and conveyed the sad news that Ibrahim bin Saleh had expired. He had died before the time given by Bakhtishu.

When the caliph heard the news, he tore his clothes and said: "Woe upon me! I was drinking and enjoying myself while my cousin was breathing his last."

His courtiers consoled and comforted the caliph. Since he was drunk, he fell asleep and did not wake up till the next morning. When he got up, he put on black clothes and went to the house of Ibrahim bin Saleh.

According to Islamic custom the body of Ibrahim was washed, perfumed with camphor and wrapped in a shroud.

Ibn Bahla who was standing by, watched the whole process carefully. When the caliph arrived and saw Ibn Bahla, he exclaimed: "Do you remember your words, your promise and your pledge?"

Ibn Bahla implored: "Oh Caliph, do not issue orders to seize my property and my slaves."

The caliph roared: "I hate liars; I never forgive them."

Ibn Bahla pleaded: "I am not asking for mercy. I only request you not to issue orders in haste. Your cousin is not dead and can be revived."

The caliph retorted: "Can a dead man come back to life?"

Ibn Bahla replied: "A dead man, who is not really dead, will come back to life. But after he sees himself naked in the shroud, and smells the odour of camphor, he would die from the shock. I beg you to ask your servants to remove the shroud, wash the camphor off his body, put his own clothes back upon him and lay him down on his bed."

As soon as instructions of Ibn Bahla were carried out by the order of the caliph, he took a sharp knife and made an incision between the two fingers of Ibrahim's left hand. Blood started flowing. After some time his body moved and Ibrahim bin Saleh opened his eyes. When he saw the caliph he said in a faint voice: "May God bless you, my cousin, that you have come to see me."

Jafar as-Sadiq made many discoveries in the field of medicine and formulated new methods of diagnosis and treatment. No one before him had done so much for advancement of the knowledge of medicine in the East.

By the word, "East", we do not mean Arabian Peninsula. The Arabs had no knowledge of medicine before Islam. Among the ancient people only the Arabs made no contribution at all to the science of medicine. There were no physicians in Arabia. If someone fell sick, he was left without medical aid to recover by himself or to die.

The Arabs of the desert seldom fell sick. Their main food was camel's milk, which provided all the necessary nourishment for the body without depositing harmful residues. Many chronic

diseases of today, which result in a patient's death, are due to harmful matter deposited in our bodies from the food we consume. Uric acid is one of them. Another factor, which contributed to good health and longevity of the people of the desert, was that they breathed fresh air.

The dwellers of the desert, however, suffered from the diseases of childhood caused by microbes, which resulted in large number of deaths every year. Child sickness was so wide spread and such a big killer that, as mentioned in "The Seven Pillars of Wisdom" by Lawrence of Arabia, the population of Arabia did not change much from the beginning of the Islamic Era till the end of the 18th century. In some parts of Arabia the population actually declined although Islam had done a lot to increase the population of its followers.

The Arabs of the desert, who survived childhood diseases, had a long and healthy life. On the contrary, those who lived in the cities suffered from many ailments and remained at home without a doctor and without any medication.

The situation did not improve because there was no one in the whole of Arabia to teach medicine and produce physicians. So far as our knowledge goes, the first person who started teaching medicine was Mohammed al-Baqar or Jafar as-Sadiq.

Jafar as-Sadiq was not a physician by profession so that he could have made those discoveries and formulated methods of diagnosis and treatment after practising medicine. Did he learn them from his father? Did Mohammed al-Baqar teach him the science of medicine also? If so, the question remains to be solved as to who taught medicine to Mohammed al-Baqar?

The knowledge of medicine was not confined to any one nation. The people of Egypt, Greece and Iran had worked in that field and had their own systems of medicine. A student could have enriched his knowledge from any or all of the above sources. Since the system of medicine of Jafar as-Sadiq (A.S.) shows an Iranian influence, there is a likelihood that he had learnt medicine from Iranians. It is also possible that he learnt something from Iranians and something from Coptic scholars.⁽¹⁵⁾

During the Sassanid period Iranians were advanced in medicine. But it was not possible for everyone to study the subject even if he had the aptitude. Iranian society was divided into classes. Each class of people could do the work which was assigned to it. Only clerics and the people of middle class could study and practice medicine. It was impossible to enter from one class into the other and change one's profession. Some Sassanid rulers were so cruel that they would have killed any person of the lower class, who tried to educate his children.

One of the causes of Mani movement during the Sassanid period was this division of people into classes and restrictions imposed upon them that they could not change their class or profession. Mani said that all Iranians should have the right to get education and that it was a tyranny of the ruling class that they denied that opportunity to common people.

Mani was crucified and most of his followers were killed. Those who could run away from Iran settled in Torfan, northwest of China. In this new place they followed the teachings of Mani. All men and women were given education. Medicine was one of the subjects being taught there. Thus the immigrants created an educated society and remarkable Iranian civilization in Torfan.

Historical records show that Iranian immigrants practiced medicine in Torfan. They could not have done so if they had no knowledge of it when they left Iran. They could not learn it in China. This fact proves that Iranians had a system of medicine during the Sassanid period.

The Manis in Torfan preserved the Persian language and Pahlavi Sassanid script. They made it a medium of instruction. They read in Persian and wrote in Persian script. In this way they

(15) The research scholars indulged in wild speculations when they failed to find worldly sources of the knowledge of the Imam. First they wrote that he learnt medicine from Iranian sources and then from Coptic scholars. Finally they admitted that they do not know from where he got that knowledge. They also admitted that the books of Greek philosophers were not translated into Arabic when Imam Jafar al-Sadiq (A.S.) was teaching medicine to his students.

saved their language, their culture and their identity. But the Iranians in Iran could not save their language. When Aramean Achaemenids came to power they started writing Persian words in Aramean script. In this way a new language, known as Hazwarish, was born.

Today we do not have any books on medicine written during the Sassanid period. Nevertheless, we cannot believe that Iran, which had such a great university as Jundi Shahpur, with an affiliated hospital, had no books on medicine. We know that medicine was taught in that university, but we do not know how students took notes from lectures. Most probably they wrote them down first on wooden boards and then copied them on paper, just as was done by the students of Mohammed al-Baqar (A.S.). They only stood and watched when operations were performed.

Writing and copying of books always posed a big problem in the past. Learned people could not afford to spend their precious time in writing their books themselves. They always took the help of their students. Most books of the Greek philosophers were written on a wooden board and then copied on the writing material, whichever was available. Perhaps the books on medicine were written in the same way in Iran during the Sassanid period.

Poets in the past enjoyed patronage of the rulers and rich people. They were encouraged to compose verses, which were written and compiled in the form of books through the financial help of their patrons. Similarly, learned people also depended upon the help and support of the rulers and rich people for writing and copying of their books. If new schools were built where they could work as teachers and earn their living, they spent the rest of their time in writing books. They could also enlist the help of their students in making their copies. Some rulers gave financial help to scholars and asked them to write books.

Avesta could not have been compiled without the help of Ardshir I, the founder of the Sassanid dynasty and his son,

Shahpur I. They encouraged Tansur, the Persian priest and scholar, to compile that book, some parts of which had scattered and some totally destroyed during the Ishkanian period. Similarly it was with the help of Darius I, the first Achaemenid king, that it was translated from Bakhtari language (if it was originally in Bakhtari) into Achaemenid Pahlavi.

About 150 manuscripts from the Sassanid period are available today. Some of them are books, some pamphlets and some only small pieces of paper, but none of them is on the science of medicine. However, on the authority of some Parsee scholars, Professor Edward Brown confirms that after the conquest of Iran by the Arabs, the Parsees of India had books on scientific subjects, including medicine and botany.

It is an established fact that Iran has always been a centre for the treatment of diseases by herbal medicines. It introduced a large number of medicinal herbs to the world. Therefore, there should have been books in Iran showing medicinal properties of different herbs.

Since Iran had its own system of medicine, it seems probable that a part of that knowledge reached Jafar as Sadiq (A.S.) through Iranian sources.

Farid Wajdi writes in Arabic Encyclopedia that Jafar as-Sadiq (A.S.) acquired the knowledge of medicine from the Institute of Alexandria. It is not correct. That institute was attached to the library and was also destroyed by the Arabs when they conquered Egypt. But those, who had studied in that institute taught different subjects to their students and acquainted them with the theories of Greek philosophers. Thus the knowledge, which was in the books of the library passed from generation to generation till it reached us. We, therefore,

(16) Western writers, who are prejudiced, blame Amr bin al-Aas for burning the library and affiliated institute, which were burnt and destroyed in 48 B.C. by Julius Caesar. To Farid Wajdi they were still in existence at the time of Jafar as-Sadiq (A.S.). The barbaric Romans had burnt and destroyed everything totally and completely and nothing had escaped the holocaust. See Introduction.

cannot rule out the possibility that Jafar as-Sadiq (A.S.) might have received some books or copies of books from that library. Perhaps what Farid Wajdi means to say is that he acquired the knowledge of medicine from the books of that library and not from the Institute of Alexandria.⁽¹⁶⁾

THE THEORY OF FOUR ELEMENTS

One of the subjects taught by Mohammed al-Baqar (A.S.) was physics. We do not know where Jafar as-Sadiq acquired knowledge of medicine, but we know that Mohammed al-Baqar learnt physics from Coptic scholars just as he had learnt geography and mathematics from them.

Mohammed al-Baqar (A.S.) was teaching Aristotelian physics, which included many subjects such as zoology, botany, geology, mechanics etc. In those days all of them were considered as parts of physics, but each of them is a separate subject today. If physics is the science which deals with material things, we must admit that Aristotle was right in treating them as parts of physics.

Jafar as-Sadiq (A.S.) had learnt physics from his father. When he was only 11 years of age he had attacked the theory of the rotation of the sun around the earth. At the age of 12 he rejected the Theory of Four Elements of Aristotle and proved that it was wrong. Criticising the theory he said: "I wonder how a man like Aristotle could say that in the world there are only four elements-Earth, Water, Fire and Air. The Earth is not an element. It contains many elements. Each metal, which is in the earth, is an element.

From the time of Aristotle to Jafar as-Sadiq (A.S.), that is, for a period of about one thousand years, the Theory of Four Elements remained the corner stone of physics. No scholar expressed his doubts about its accuracy. Yet a boy of 12 years of age from Medina raised questions and proved that it was wrong.

When Jafar as-Sadiq grew up and started teaching in his Institute, he proved that Water, Air and Fire were also not elements. One thousand and one hundred years before the scientists of Europe discovered that air was not an element and

had separated its constituents, Jafar as-Sadiq (A.S.) said that air is not an element, but a mixture of many elements.

By sound judgement and reasoning, it could be accepted that Earth is not an element, but it was not possible to believe that air is not an element. All eminent scientists after Aristotle, including the scientists of Europe of the 18th century, which was the golden age of science, believed that air was an element. It was only after Lavoisier separated oxygen from the air and demonstrated the important role it plays in breathing and combustion that they accepted that it is not an element.

In 1794, Lavoisier, the father of modern chemistry, was beheaded by the sharp knife of the guillotine. Had he been allowed to live, he would have made many other important discoveries.

Jafar as-Sadiq (A.S.) was one thousand and one hundred years ahead of his time when he discovered that air is not an element. Shias believe that he made those discoveries because he was an Imam and had Ilm Ladunni (divine knowledge). If he was making those discoveries by divine knowledge why did he not discover conversion of matter into energy and left it for Einstein, and why did he not make other discoveries, which were made in the eighteenth, nineteenth and twentieth centuries? It was by his knowledge as a human being and not as an Imam that he discovered that air is not an element.

Jafar as-Sadiq (A.S.) has said that there are many elements in the air and that all of them are essential for breathing. After Lavoisier separated oxygen and demonstrated that this is the element in the air which supports life, scientists thought that other elements play no part in breathing. It was quite contrary to what Jafar as-Sadiq (A.S.) had said. In the middle of the nineteenth century scientists had to change their views about the part played by other elements in breathing.

By that time it was proved that although oxygen purifies blood it also burns combustible materials, which come in contact with it. If living beings breathe pure oxygen for a long time their breathing organs would be oxidized. oxygen does not

damage them because it is mixed with other gases.

Presence of gases which are in very minute quantities in the air is also essential for breathing. Ozone gas, which has the same chemical properties as oxygen, plays a very important role in breathing. It fixes oxygen in the blood. Without the presence of ozone gas oxygen cannot purify blood and will fail to perform its function.

Oxygen being the heaviest of all other gases in the air would have settled at the bottom and covered the surface of the earth up to a certain depth. As a result, breathing organs of all animals would have been burnt and animal life would have become extinct. Moreover it would have cut off the supply of carbon dioxide, which plants need so badly, and made it impossible for them to grow on the surface of the earth. Presence of other gases in the air does not let oxygen settle down to the bottom and destroy animal and plant life. At last, after more than one thousand years the theory of Jafar as-Sadiq (A.S.) that presence of all gases in the air is essential for breathing was proved to be correct.

Today this theory of Jafar as-Sadiq (A.S.) does not seem to be important, but in the 1st Century of the Hijra (8th century A.D.) it was a revolutionary idea to say that the air is not an element. In Eastern countries, including the city of Medina, which was the city of the Prophet, such ideas could be expressed freely. But up to the 18th century such scientific ideas could not be expressed or tolerated in Europe. In the religion of Islam a Muslim cannot be accused of heresy if he said that the air is not an element, but the followers of many other religions believed in the purity of the air and water and considered them to be elements. It would have been tantamount to heresy if anyone of them had said that the air was not an element.

Priestly was born in 1733 A.D. and died in 1804 A.D. He discovered oxygen, but it was Lavoisier who found out its properties. It is said, although there is no proof, that Priestly gave the name of oxygen to this important gas. Oxygen is a Greek word composed of two syllables-oxy, meaning acidity and gen,

meaning producer. Oxygen, therefore, means the producer of acidity.

The eminent scholar Priestly, who cast off his clerical robe and came from the church to the laboratory, had made a great discovery. If he had not entered politics and continued his research, he would have discovered the properties of oxygen also. But politics removed him from laboratory work. He became a staunch supporter of the French Revolution. As a result, he was so hated in England that he had to emigrate to America where he wrote some books, but did not continue his research on oxygen.

Jafar as-Sadiq (A.S.) was the first person to discover that oxygen produces acidity. We do not think that he had made that discovery when he was a student. Most probably he made that discovery when he had started his teaching career and had already discovered that oxygen is an element. He did not say himself that oxygen is a producer of acidity, but in the course of his lectures, he said that there are many elements in the air but only one of them brings about changes in different materials. It is the same element which helps in combustion. Without the presence of this element in the air, combustible materials will not burn. He said that this element is so active and strong that if it is separated from air and produced in a pure form, it would burn even iron.

It has been proved by experiments that pure oxygen can burn iron, as was said by Jafar as-Sadiq. If we take a piece of red hot iron and plunge it into pure oxygen, it will burn with a luminous flame. Just as in the old days people used to light a lamp by burning wicks in vegetable or kerosene oil, we can make our lamp by putting the wick of red hot iron into liquid oxygen. This lamp will produce intense light and illuminate our house.

It is reported that once Mohammed al-Baqar, father of Jafar as-Sadiq, said in his classroom that by using scientific methods we can produce fire from water, which extinguishes fire. This remained a riddle till the eighteenth century when it

was proved that by employing scientific methods, fire can be produced from water-a fire which is hotter than the fire produced by burning wood or charcoal. If hydrogen, which is a part of water, is burnt with the help of oxygen, which is another part of water, a flame of fire with a temperature of 667 degrees is produced. This process is called oxidation and is employed in welding and cutting metals.

There is no evidence that Mohammed al-Baqar had obtained hydrogen. There is also no proof that Jafar as-Sadiq had obtained hydrogen or oxygen in pure form. But the experiments, which he had made, were not possible if he had not obtained oxygen in one form or the other. His following remarks are not his theories. They are the results he had obtained by making experiments with oxygen.

1. There is an element in the air, which is more essential for breathing, than others. It is actually the support of life.
2. It is the same element, which, in the course of time, and in most cases, by direct reaction, brings about changes in certain materials and putrefies them.

The words, "Direct Reaction", must be kept in mind, in order to realize that the assessment and description of Jafar as-Sadiq of the nature of oxygen was quite correct.

After Priestly and Lavoisier had discovered oxygen and found out its properties it was believed that it was only oxygen, which, in the course of time, reacts with certain materials, changes their nature and putrefies foodstuff. That notion changed when Pasteur discovered microbes and proved that putrefaction of foodstuff, dead bodies of animals and many other things is caused by microbes and not by oxygen. But Pasteur must have realized that microbes cannot survive without oxygen. Therefore, what Jafar as-Sadiq had said is correct that in most case it is the direct reaction of oxygen, which brings about changes and in some cases it is an indirect reaction.

Jafar as-Sadiq had also said that the element, which supports life is heavier than all other elements in the air. It was a very important discovery. The world had to wait for about one thousand years till Lavoisier proved that oxygen is so heavy that in nine kilograms of water, there are eight kilograms of oxygen, while hydrogen, which is twice the volume of oxygen, is only one kilogram.

Time did not allow Jafar as-Sadiq to do further research on the element in the air which supports life and produces acidity. However, he was the pioneer and leader in the scientific study of oxygen.

It is reported that after the death of Jafar as-Sadiq his students said that air or oxygen could be liquified. This was a very old idea. Even before Aristotle it was believed that all gases could be liquified, but there were no means available to do so.

Lavoisier himself could not liquify oxygen because by the end of the eighteenth century science and technology had not developed enough to enable him to do so. Moreover, he was not allowed to live long enough to continue his work.

For a long time after Lavoisier scientists believed that oxygen could not be liquified. Finally technology developed to such an extent that it became possible to create very low temperatures, but in spite of that advancement in technology, it was not possible to liquify oxygen in sufficient quantities so that it could be used in industry. It was only in the twentieth century that technology to produce very low temperatures reached perfection. By producing a temperature of 183 degrees below zero Centigrade, oxygen was liquified under ordinary air pressure. The temperature of 183 degrees below zero Centigrade is only 90 degrees above absolute zero, which is 273 degrees below zero Centigrade. At this temperature the internal movement of matter comes to a standstill.

Many scientific ideas of today existed in old days also, but there were no means to make a practical use of them. Five hundred years before Christ, Democritus had enunciated the Theory of the Atom. He said that matter is made up of atoms

and that there is a brisk movement inside the atoms.

If we forget, for the time being, the names of electrons, protons and neutrons, which were discovered in the twentieth century, we will realize that he had given a correct description of an atom. However, no practical use of this knowledge could be made till the Germans tried to harness the power of atoms and use it in World War II. Finally the Americans entered the race and succeeded in exploding the first atomic bomb.

JAFAR AS-SADIQ (A.S.), FOUNDER OF IRFAN (GNOSTICISM)

It is reported by some gnostics and historians that Jafar as-Sadiq learnt Irfan from his father, Mohammed al-Baqar. Shaikh Attar, author of the famous book, *Tazkirat ul-Aulia*, is one of them. The philosophy of Irfan did not exist in the 1st century among the Muslims. Perhaps the idea of Irfan was there, but it must have been in a nebulous form and rudimentary stage. It had not developed into an independent school of thought, so that it could be taught or discussed in the classrooms. Moreover, there were no Pirs, Murshids, Qutubs or Ghoses, who might have gathered around them a number of followers and taught them lessons in Irfan. It was a manifestation of inner perception and had nothing to do with traditional methods of teaching and learning. Pirs and Murads, when they appeared, did not give any lesson to their followers. What was required of them was service. They were told that the lesson of love could not be learnt by means of pen, paper and books.

*Wash the pages of books white. You can't
Find in them the lessons of love.*

Tazkirat ul-Aulia is considered by many Muslim scholars to be an authentic book; but it has some stories, which are not correct. One of them is that after completing his education Ba-Yazid Bustami wanted to study Irfan and become an Arif-e-Kamil (perfect gnostic). To attain that high position he had to serve as an apprentice under great gnostics of the time. Ba-Yazid left Bustam. After suffering many hardships and disappointments, he served under one hundred and fifty great gnostics of the world during a period of thirty years. Finally he came to Jafar as-Sadiq to serve under him as an apprentice. One day Jafar as-Sadiq asked Ba-Yazid to give him a book, which was in the niche over his head.

Bustami asked: "Where is the niche?"

Said Jafar as-Sadiq: "You have been coming here for such a long time and you have not seen the niche?"

Replied Bustami: "I do not see anything here except you."

Said Jafar as-Sadiq: "Ba-Yazid, your period of apprenticeship is over. I give you permission to return to your country and start teaching and giving lessons on Irfan."

We do not believe that the above story was fabricated by Shaikh Attar himself. Most probably he entered it in his book believing it to be true. Jafar as-Sadiq died in 135 of the Hijra, in the middle of the 2nd century, while Ba-Yazid lived in the 3rd century and died in 261 Hijra. He could not have seen him and served under him as an apprentice.

However, it is confirmed that Jafar as-Sadiq used to teach Irfan. This attracts our attention to the intellectual pursuits of that great man and his varied interests. Irfan is a type of spiritual pursuit. It has an effect upon the character of the Arif (gnostic) and makes him a good natured man, but it has no connection with material and experimental sciences. Jafar as-Sadiq was a pioneer in experimental science. He was the first scholar in Islam who made theory inseparable with experiments. Normally he should not have shown any interest in Irfan. Today no professor of physics or chemistry would show any interest in Irfan, which cannot be proved by experiments. Irfan can be understood only after a long period of self-denial and discipline.

Jafar as-Sadiq, who was the first and foremost scholar of physics and chemistry in the Muslim world, was so interested in Irfan that Zamakhshari, the famous scholar and historian, has eulogised his exceptional knowledge of Irfan in his book, Rabi ul-Abrar, and called him the founder of Irfan. Shaikh Attar, who himself was a famous gnostic, has also accepted Jafar as-Sadiq as the pioneer in Irfan. The writing of Zamakhshari carries more weight than that of Attar. Zamakhshari was a historian. He wrote down the facts and nothing but facts, while Attar was a

gnostic and lover. He wrote in a state of ecstasy and rapture and was guilty of exaggeration, although unintentionally, in respect of some of the gnostics whom he adored.

Many gnostics and historians have written that by being the first or one of the first gnostics in the Muslim world Jafar as-Sadiq allowed non-Muslims also to attend his Academy and benefit from his lectures. It has been confirmed from reliable sources that Sabeian students studied in his college and attended his lectures.

The Sabeans were neither Jews nor Christians. Some of them were monotheists and some polytheists. With the expansion of Islam polytheists pretended to be Unitarians so that they could live peacefully with Muslims. They knew that Muslims would not ill treat Unitarians whom they called Saheb el-Kitab (People with books from God).

Most Sabeans lived in Harran, which lies to the west of the Tigris and Euphrates rivers in Iraq. In ancient times this place was called Kara. The Sabeans, who were Unitarians, washed their newborns with water to give them a name. This was called Baptism.

Many European scholars believe, as is mentioned in the *Encyclopedia of Islam*, that the word, Saba, meaning washing or plunging in water, is the root of the word, Sabeian. These people were followers of Prophet Yahya (John the Baptist).

Shaikh Attar and Abd al-Hasan Kharqani have written that both believers and non-believers studied in the college of Jafar as-Sadiq and benefitted from his vast knowledge. This shows that he was a broad-minded person and wanted everyone to acquire knowledge.

The Sabeans were a nomadic and backward people. They had no history or literature. But they were intelligent and hard working. The college of Jafar as-Sadiq became a centre of attraction and studies for them. This institution made them civilized. They produced great and renowned scholars, scientists and engineers, whose names appear in the *Encyclopedia of*

Islam today. Many European scholars are of the opinion that Jabir bin Hayyan, the famous student of Jafar as-Sadiq, was a Sabeian.

Just like Shaikh Attar and Zamakhshari Shaikh Abd ul-Hasan Kharqani had great respect and regard for Jafar as-Sadiq and acknowledges him as the leader of gnostics in the Muslim world. Kharqani was a great scholar and had done research on the sources of gnosticism. He discovered that gnosticism existed in the East before Islam, but he could not find any trace of it in Iran.

It is surprising that Kharqani, who had vast knowledge of the Jewish and Christian faiths, knew nothing about Zoroastrian religion. To search for the roots of gnosticism in Iran in the pre-Islamic period one must study Zoroastrianism.

If he had studied this ancient religion of Iran, he would have come to a different conclusion. He lived in the 2nd half of the 4th century and the 1st half of the 5th century. Many people, who had embraced Islam, still spoke Pahlavi language. If he had made enquiries from them he would have discovered that gnosticism existed in Iran before it was conquered by the Arabs. However, his research on the sources of gnosticism before Islam is a great work and must be appreciated.

It has been proved that gnosticism existed in Iran before the Islamic period. It had two important sources. One was the Zoroastrian religion and the other Alexandria.

Research work of some French scholars and translation of old Indian books, especially Veda, has shown that there existed in ancient times intellectual and cultural links between Iran and India. European research scholars have traced the influence of Indian thought on Zoroastrian religion as well as gnosticism in Iran.

Zoroastrianism, however, is quite different from Hinduism. The foundation of Zoroastrian religion is dualism while Hindu faith is based on trinity. Zoroastrians believe that the universe is under the dominion of two quite independent and opposite forces Good and Evil. Zoroaster himself never

subscribed to the idea of trinity, which is the corner stone of the Hindu faith.

If Shaikh Abd ul-Hasan Kharqani had tried to discover the sources of gnosticism in Iran before Islam, he would have noticed the difference between Zoroastrian, Hindu and Alexandrian schools of gnosticism.

Gnosticism of Jafar as-Sadiq was quite different. It was based on monotheism and had no trace of dualism or trinity in it. It was also free from all excesses and exaggerations, which we find in many schools of gnosticism. No doubt it was the highest form of human thought and noblest doctrine for the perfection of mind and purification of soul. It was so lofty and grand that no one could practise it during his lifetime nor after his death. It is still beyond the comprehension of common people.

The founders of many schools of gnosticism in later periods were guilty of so many excesses and exaggerations that some of their followers turned away from them. The Shatha and Tamah (keen rapture and desire) in their gnostic lives reached the stage where they considered themselves equal to God. It was not without some justification that Zamakhshari hated such gnostics.

Because of the blasphemous thoughts that were propagated by many schools of gnosticism not only the Shias but a number of Sunni scholars took lessons of gnosticism from Jafar as-Sadiq. It is reported that even two hundred years after his death the Sunni gnostics of Baghdad, which was the capital of Bani Abbas, followed gnosticism which was taught by Jafar as-Sadiq (A.S.)

The gnosticism (Irfan) of Jafar as-Sadiq enjoins upon its followers to lead an orderly and regulated life; to have full faith in Allah and to carry out His commands at proper times without disrupting or dislocating their worldly affairs.

Shaikh Attar writes in *Tazkirat ul-Aulia* that when Ba-Yazid Bustami went to Jafar as-Sadiq he reproached him for wasting thirty years of his life and suffering hardships and hunger. He said to him: "Bustami, why did you wander in the

wilderness for thirty years and neglect your duties towards your wife and children?"

The gnosticism of Jafar as-Sadiq does not favour renouncing the world. It teaches everyone to coordinate his worldly affairs with his religious duties. It does not promise union with God. Jafar as-Sadiq never said that man would find union with God. He said that the following verse of the holy Quran: "Inna Lil-Lahe We-Inna Elahi Rajeun" (We are from Allah and unto Him we shall return) does not mean that man shall become God. Man is God's creation and shall remain so for ever. He may find favour with his Creator after his death.

After the death of Jafar as-Sadiq founders of many new schools of gnosticism interpreted the above verse to mean as follows: "We are from God and we shall find union with God again." They contended that as a result of this union they would enjoy eternal life and have knowledge of everything. They would also know what was happening in the world; they would watch their relatives and help them solve their difficult problems.

Belief in life after death is not confined to the Muslims alone. It is shared by the followers of all religions of the world. Even those who burn their dead and cast the ashes in the river believe that the dead are living in the other world. The only exceptions are the followers of Mani and members of Batini sect.

Batinis were a branch of the Ismaeli sect. They believed that after his death a man is totally annihilated and there was no resurrection.

Ancient Egyptians believed that life began immediately after death for getting one's reward or punishment. Followers of some religions believe that there was a gap between the end of worldly life and beginning of the life in the other world.

Belief in life after death exists among savages also. Dr. Livingston, who discovered the source of the river Nile, lived for a long time in Central Africa. He noticed that people of every tribe believed that their dead ancestors lived their own lives in

the other world. Some tribes believed that the will of their forefathers influenced their daily lives. The witch doctors of Central Africa believed that the souls of their forefathers determined their destiny as well as the destiny of black people.

From what Livingston observed in Central Africa and elsewhere, he came to the conclusion that the more backward a tribe was the stronger was its belief in life after death. This does not mean that civilized people do not believe in the life after death. They do, but their views are quite different from those of black people. A black man believes that there will be no difference between his present life and his life in the next world. But a Frenchman and an American believe that after his death he will not eat as he eats today; he will not put on clothes and will not go to the cinema.

Some scholars are of the opinion that belief in life after death is a natural belief, although it is not a biological phenomenon nor a bodily need, such as hunger and thirst, which cannot be ignored. It has been passed on to us from one generation to the other for hundreds of years and is deeply stamped upon our minds. It has actually become a part of our nature. Only those, who have not lived in a society nor heard the views of civilized or savage people about it, will not believe in it.

The inherent belief of man in life after death is the basis of faith in resurrection. Every religion, which promises resurrection, has made use of this belief in order to create a moral inner guard for each of its followers.

Ancient Egyptians believed that if a man committed theft he was not only punished in this world, but he would be punished in the other world as well; he would live forever in total darkness in the west, i.e. the next world. The sun would never shine upon him and no lamp would light his path. Zoroastrians believed that everyone has to cross the bridge of Chunwund in the other world. A sinner would not be able to cross it and will fall down.

Different schools of Irfan (gnosticism) also made use of

this inherent faith of man in the life after death and the belief in resurrection. They found them to be the most suitable instruments for development of personalities of their disciples. They did not have to start from scratch and spend their time explaining to them that man will remain alive after his death. They had only to emphasize the point that death was nothing but a change of clothes. They said that since a man surely lives after death he must make every endeavour to attain the highest position in the next world. Gnosticism would never have thrived among Muslims without the belief in life after death. That was the first phase of Irfan.

In the 2nd century of the Hijra the 2nd phase began. Gnostics went a step further and based Irfan on the concept that man could attain the highest spiritual position even in this world. They said that one should not wait for death to attain the highest position and achieve union with God. He should strive for the perfection of his soul and attainment of highest position in this world.

The belief that after his death, a man will be united with God and even become God himself gave birth to the Philosophy of Wahdat al-Wujud (Monism or Unity of Material). It appeared after the death of Jafar as-Sadiq and became the strongest pillar of gnosticism in the East. The idea of unity of matter originated in India and Iran. Gradually it gained strength and spread to other countries; from the East it went to the West.

The supporters of Monism contended that there was no difference between God and his Creation, except in shape and form. Since in the beginning there was nothing but God, He had to make everything out of Himself. He is, therefore, the building block of everything. Just like God, this world has no beginning and no end. It is a part of God. Everything we see, the earth, the sky, the stones, the plants and the animals are nothing but God.

JAFAR AS-SADIQ (A.S.) SAVED SHI'ISM FROM DESTRUCTION

When Jafar as-Sadiq (A.S.) was still in his infancy some people following the example of the Christians spread the belief that Prophet Mohammed, Ali ibn Abi Talib and the Imams had two natures-the nature of man and the nature of God. That is, they were partly human and partly divine. This belief posed a great danger to their sect. When Jafar as-Sadiq grew up, he fought against this idea and saved Shi'ism from disintegration. He realized that it would create differences, split the people into factions, weaken the Shia movement and finally destroy it totally.

The day he started giving lectures he vehemently opposed the idea that the Prophet of God, the Imams and he himself had half the nature of God and half the nature of man. He denied that any of them had the nature of God in them. In his support he quoted the saying of the Prophet: "I am a man like you."

Most probably he had learnt a lesson from the Christians. He knew that differences between the Christians arose from the time they started to believe and proclaim that Christ had the nature of God as well as of man in him. These difference created turmoil and divided the Christians into twenty churches or sects. The first church, that is the first sect of the Christians, was the Orthodox church, established in Antioch (Antakia). It was also the first time that the word Christian was coined and circulated.

The Christian church in Iran was a branch of the Orthodox church of Antioch. The first centre of Christianity was established in Antioch in the 2nd century A.D. and remained so till Constantine, the Emperor of Rome, transferred his capital from Rome to Byzantium (present city of Istanbul). Although

Antioch was part of the Roman Empire it had internal freedom and its Christian inhabitants, unlike the Christians of Rome, were free in religious matters and could call themselves Christians. It is surprising that the Roman emperor, who killed a large number of Christians in Rome, did not molest them when he entered Antioch.

About 150 bishops from Antioch, the centre of Christianity in the world, were working as missionaries in 11 countries from Egypt to Iran. But those bishops did not see eye to eye with one another. They were deeply divided on the question of the nature of Christ.

The first sect of Christianity came into being, when the Orthodox church was established in Antioch. Within a short period of time it was divided into many churches or sects. Today the Orthodox church is divided into dozens of churches or sects, e.g. Church of Antioch, Church of Jerusalem, Church of Alexandria or Coptic Church, Russian Church, Ukrainian Church, Church of Istanbul, Church of Greece, Church of Bulgaria, Church of Romania, Albanian Church, Church of Poland, Estonian Church, Church of Finland, Czechoslovakian Church, Armenian Church etc., etc.

No two Orthodox churches agree with each other on the question of the nature of Christ. The issues which divide them are as follows: How much of Christ is God and how much of him is human? Is one half of him God and one half human, or only one third of him is God? Are these two natures of Christ in the form of a compound or they are only mixed together. Can they be separated? Are they mixed like water and vinegar and cannot be separated? How can Christ, who is partly human, go to heaven and unite with God? Can the dust of the Earth go to heaven and unite with God?

These disputes and differences, which arose in the 1st and 2nd centuries A.D. and divided the Christians for two thousand years still divide the three branches of Christianity-Orthodox, Catholics and Protestants. Each of them believes that the others do not follow the true faith.

The three big branches have split up into so many sects that it is impossible for anyone in his lifetime to master their history or the history of Christianity as a whole. But in the 2nd century when Jafar as-Sadiq (A.S.) was teaching in his college it was possible for anyone to learn complete history of Christianity.

In addition to his vast knowledge of other subjects Jafar as-Sadiq was well versed in the history of Christianity. Among all the Muslims he was the only person who was an authority on the subject. He knew the origin of the Orthodox and Catholic churches and the main cause of differences among Christians and their division into so many sects. He did not want that divisive element to enter into Shia theology and divide them like the Christians. That was the reason he so strongly opposed the idea that the Prophet of Allah and the Imams had God's nature in them.

In reply to those who propagated that idea he said that all of them were human beings and had no essence or element of God in them. But they were God's most favoured servants and were chosen by Him to lead and guide mankind. He announced that anyone who believed or confessed that they had an essence of God in them will be believing in many gods and will not remain a muwahid (monotheist). He will become a mushrik (dualist or polytheist). He said that there were some people who did not believe in those ideas themselves but were spreading them to mislead innocent people and sow seeds of differences and discord among them. He warned the Shias against mischievous plots of their enemies and the enemies of their faith.

JAFAR AS-SADIQ (A.S.) SAVED ISLAM FROM IMPOVERISHMENT

A great danger threatening Islam was Monasticism which Muslims wanted to adopt from the Christians. Jafar as-Sadiq fought against that tendency and saved Muslims from a great catastrophe.

The first Greek Orthodox monastery was built in the 6th century A.D. on Mount Athos, on an island in the Greek province of Salonica. The monks had selected this place because it was surrounded by sea, was far from human habitation and had deep caves and plenty of fresh water. From that time this place became a safe haven for Orthodox Christians, who wished to leave the world and spend their lives in seclusion and prayers.

On this mountain there are about 20 first class monasteries, 12 convents and a large number of abbeys and hermitages, but they have remained so secluded that no one knows the names of even 5 of them. One special feature of this place is that no woman has ever set foot there. Even an old mother is not allowed to see her son, who might be dying in a monastery. She can see only the coffin containing her son's dead body, when it is being buried outside the monastery.

During the last 1400 years there has not been the slightest change in the condition of life or the mode of living in these monasteries. They have no radio, television or electric appliances. The only change which has come to this place during this long period is that electric light has replaced the candle and oil lamp.

Rulers and rich people of Europe, who belonged to the Orthodox church created large trusts for these monasteries. They received a great setback when after World War I, the Bolsheviks came to power and confiscated their trust property,

most of which was in Russia. They received another setback after World War II, when the Communists came to power and confiscated their property, which lay in Eastern Europe.

Even after the Bolsheviks had taken over their property in Russia, these monasteries had so much income that they could support 14,000 monks, who lived on the mountain. Besides, they also employed and kept 1,700 people permanently for the service of the monks. Their main duties were to prepare their meals, stitch and wash their clothes and mend their shoes. Today the income of these monasteries has dwindled and the number of monks living there is greatly reduced.

Seventeen out of twenty grade one monasteries on Mount Athos belong to the Greek Orthodox Church, but not even two of them can unite because of their differences concerning the nature of Christ. There are some unconfirmed reports that when Sultan Mohammed, the Conqueror, had encircled Constantinople the monks of these Monasteries were locked in arguments over Lahuti (divine) and Nasuti (human) nature of Christ and they did nothing for the defence of the centre of Christianity.

In the first half of the second century Hijra many Muslim sects were inclined to borrow Monasticism from Christians and introduce it in Islam. They believed that one should give up worldly life and spend his time in seclusion and prayers. The leaders of those sects had arranged some solitary places where they and their followers could go and spend their lives in prayers. Some of them said that in Islam there was nothing better than Salaat (prayers), while others said that fasting was better than prayers and if someone had withdrawn from the world he should fast every day throughout his life and think of nothing but Allah.

The leaders of those sects had never thought of the means of livelihood for their followers as well as for themselves. Most probably they thought that they would be supported by the income of the trusts, which would be created for them, just as trusts were created for Christian monks.

Shias also, like others, were attracted to Monasticism. This philosophy appealed to those who did not want to work and earn their own living. Just as he had opposed the idea of divinity of Prophet Mohammed (SAA) and the Imams, Jafar as-Sadiq strongly opposed Monasticism among the Shias and other sects of Islam. He was afraid that Monasticism would destroy the Shias. It would serve the interest of the rulers, who were hostile to them, if they cut themselves off from the rest of the world. In that case Shi'ism would have no soldiers to fight for it, defend it, propagate it and spread its ideology. It would die a natural death even if their enemies did nothing against it.

The church or the central organization of a religion, by whatever name it may be called, is the nucleus of religious activities. Its main function is to work for the spread of that religion. The people who work at the central organization of any religion are just like soldiers, who fight and work for the defence and expansion of that religion. But a monastery is not like a church. It has no means of propagating the cause of religion. Anyone who goes to a monastery is condemned to lead a solitary life. He is not capable of fighting for the cause of his faith.

Some people think that the idea of leaving the world and spending one's life in monasteries first appeared among the Christians. This is not true. It originated, as history tells us, in India. In ancient India a man was supposed to have completed his worldly mission and performed his duties towards his family and his society after his children had grown up. That was the time for him to leave his family and his people, go to the woods and lead a solitary life till his death.

Christians borrowed the idea from Indians. Perhaps the pressure of Roman emperors upon them gave strength to that idea. A number of them left the world and entered monasteries. Christianity, which enjoins its followers to work for the next world, was also responsible for the spread of Monasticism.

Even before Christianity the spiritual leaders of other religions spent their lives in temples. The temples also had income from trust properties. In ancient Egypt a great part of

farmlands belonged to the temples. However, those who lived in temples had not forsaken the world. They were considered to be the servants of the temples and they used to fight and die for the cause of their religion.

At the beginning of the 2nd century Hijra Muslims were attracted not only to Monasticism, which was opposed by Jafar as-Sadiq, but they wanted to follow another Christian practice which was Baptism.

In baptising their children Muslims followed Orthodox Christians, with whom they were in close contact. Within 20 to 40 days after the birth of a child it was taken from the house to a Mosque in a tub. The tub was filled with water. The baby was undressed and its face was turned towards the east. On each side of the tub stood a man and a woman. The trustee or the Imam of the mosque acted just as a Christian priest would act in baptismal ceremony. The man who stood on one side of the tub would utter loudly the name, which they wanted to give to the child. The Imam would call the child by that name and ask: "Do you believe in the Prophethood of Mohammed (SAW)? The man would reply in proxy: "Yes, I do." The Imam would call the baby again by her name and ask: "Do you believe in the Prophethood of Mohammed (SAW)? This time the woman would reply in the affirmative on behalf of the baby. Then the Imam would anoint, with his finger, the forehead and cheeks of the baby and rub on her chest and back some sweet scented oil from a small cup. He would then plunge her twice in the tub of water and take her out immediately each time so that she might not be suffocated. Finally the man and the woman would put some white clothes on the baby and, thus, the name giving ceremony would come to an end.

That was exactly how Orthodox Christians administered baptism. Catholics administered baptism in a different way. They read some verses in Latin during the ceremony and immersed babies in water up to their chest only and kept their heads and necks above water.

Jafar as-Sadiq opposed baptism among Muslims just as

he had opposed Monasticism. He knew how the custom of baptism was practised by Orthodox Christians. He told the Muslims that the centre of Orthodox Christianity was in Antioch, which is to the north of Jerusalem. Whenever they baptised their children, they turned their faces towards the south, that is, towards Jerusalem. But Orthodox Christians in Iran also turn the faces of their children towards the south at the time of baptism, while Jerusalem lies to the east of Iran.

He told Muslims: "We have many customs which were practised by non-Muslims before Islam, but the Prophet of Allah approved them and thus they became part of Muslim customs and traditions. They are no longer practised by non-Muslims. The custom of baptism was adopted by the Christians from other religions and is now purely a Christian custom. Although the holy Quran has praised and exalted Christ and his mother, Mary, it is not permissible for us to follow Christian customs and traditions."

Jafar as-Sadiq added: "It is necessary to bathe children, but not the way the Christians do. I warn you against following un-Islamic practices. If any Muslim baptises his child as a Christian does after this injunction, it will be a proof that he is not a sincere Muslim and I will not treat him as such, even if he does not openly renounce the principles of Islam. If Muslims adopt such customs they will be divided into many denominations, just like the Christians."

When it was pointed out to him that there were already differences among Muslims he said: "Fortunately there are no differences among Muslims on the nature of Prophet Mohammed (SAW) provided they do not follow the Christians and believe that he had an essence of God in him. Present differences among Muslims are on the question of leadership. There is complete harmony and unity among Muslims on Monotheism and the Prophethood of Mohammed ibn Abdullah (SAW). On the other hand, even two Christian sects do not agree with each other on the question of the nature of Christ. Some Christian sects consider the members of the other sects as apostates. For example, Orthodox and Abyssinian Christians

believe that Nestorian Christians are apostates and should be killed."

Those, who attended his lectures, knew nothing about Nestorians. To enlighten them on the subject Jafar as-Sadiq said: "In the year 429 A.D. the Bishop of Constantinople, who was called Nestorius, presented a new theory about the nature of Christ. He said that in substance Christ was a human being and there was nothing divine in him, but God stayed within him just as a traveller stays in a caravanserai. This belief spread rapidly in Constantinople and elsewhere. The Christians, who believed that Christ was a mixture of man and God, not only rejected that theory, but issued an edict that Nestorius and his followers were apostates and should be killed. In spite of that edict, the new theory spread among Christians. Today the followers of Nestorius are known as Nestorian and are considered as apostates by the members of other sects of Christianity."

Jafar as-Sadiq continued: "Abyssinian Christians believe in the unity of Christ and God. They say that the human body of Christ was consumed by the Divinity just as a speck of wax melts in fire or a drop of water falls into the ocean and becomes ocean."

Another Christian practice, which was being followed by the Muslims, was celibacy. Considering it as a means of purification of the soul many Muslims did not marry.

When Muslims came in contact with the Catholics they found that not only the monks, who lived in monasteries, did not marry, but even ordinary priests, who served in churches, did not take a wife. Under the influence of the Catholics some Muslims refrained from taking wives. Moreover, there were some advantages in remaining single. Bachelors were free from responsibility and did not have to work hard to support wives and children.

Never in history has any Pope or World Council of Catholics issued any edict making marriage of priests unlawful. However, the state of celibacy was considered to be a perfection of priesthood for the following reasons:

1. Being servants of Christ, priests were to follow his example and remain single.
2. When a priest has no wife and children he can devote his full time and energy to the service of the church and his faith.

Lately some priests have obtained permission from the Vatican to marry. If marriage was unlawful, a priest could not have applied and the Vatican would not have allowed priests to marry and commit an unlawful act. That is a proof that marriage was never declared unlawful by the Catholic church.

Gradually celibacy spread among Muslims, which alarmed Jafar as-Sadiq. Addressing Muslims he said: "Do not follow the example of Christians. Celibacy is against the Commandments of Allah and tradition of Prophet Mohammed (SAW). Not only it hurts a man intellectually and spiritually, it endangers the Muslim nation as a whole. It will reduce the number of Muslims, while the number of non-Muslims is on the increase. If celibacy was useful, the Prophet of Allah would not have married at all. Since our Prophet himself married it is the duty of every Muslim to follow his example and get married so that he may save himself from intellectual and spiritual degeneration and also help to increase Muslim population."

Jafar as-Sadiq's opposition to celibacy, which was gaining support and strength among Muslims, made it so unattractive and unpopular, that it nearly disappeared. However, it was noticed that even in the 3rd, 4th and 5th centuries Hijra many Muslims practised celibacy but we do not know who their leaders were.

Ancient people knew that celibacy was harmful for one's health, but whenever they considered its ill effects, they thought of men only and ignored women. It was only in the 19th century A.D. that it was proved, as Jafar as-Sadiq had said, that men and women, who remain single suffer from mental disorders and some parts of their bodies do not function properly. As a result, their general health deteriorates.

DID JAFAR AS-SADIQ (A.S.) START THE MOVEMENT OF RENAISSANCE?

The theories enunciated by Jafar as-Sadiq, after his study and research in the movement of the Earth and other heavenly bodies make him the father of the Renaissance movement at least in the field of astronomy, if not in other branches of science. By the Renaissance movement we mean the revival of knowledge in Europe, which started with the occupation of Constantinople by Sultan Muhammad, the conqueror.

It must be acknowledged that the Muslim world, from its very beginning, was more amenable to new scientific ideas than the people of Europe. Until 17th century, Europeans could not tolerate any new scientific idea. Nothing was more repugnant to them than a new theory in the field of astronomy. There was no risk if someone said something about the earth, air or water, but if he said anything about heavenly bodies, which was against the traditional belief of the people, he was in danger of being declared a heretic and was sure to be imprisoned and killed.

Greeks and Romans in ancient times were also very sensitive to new ideas in astronomy, which were contrary to what they believed. When Anaxagoras, the teacher of Socrates, wanted to introduce Iranian astronomy in Greece he was declared a traitor and deported from the country.

Anaxagoras actually wanted to introduce the Persian calendar. In that calendar a year had 365 days plus a fraction of a day. Before Iranians had made their calendar, it was known that there were 365 days and a fraction of a day in each year. We have historical evidence to show that it was known to Egyptians about 2,000 years before the birth of Christ. It is not known whether the Babylonians had this information or not.

Some knowledgeable persons are of the opinion that ancient people learnt astronomy and other sciences from a very advanced and learned people, who according to Plato, were destroyed in a natural calamity.

Most people were against new ideas in astronomy because they saw the movements of the sun, moon and the stars with their own eyes. They did not believe what was against their own observation. However, they tolerated new ideas about the things which they did not see themselves. Different views were expressed in ancient times whether the world came before the movement or the movement before the world. It was also disputed whether the soul was born before the body or the body before the soul, but no one was accused of heresy for holding an opinion on such matters.

Anaximan, a scholar and philosopher of Greece, who lived before the 7th century B.C. said that our sun cannot be in a solid state. It must be molten; if it was not very hot and molten, it could not have given light and heat to the earth. He had also said that the sun must be larger than the earth, but because of its distance from us it appears smaller. This is exactly what we know today about the sun. It is so molten that it is in a gaseous state. But this theory was rejected by the Babylonians. If anyone in that city said that the sun was in a molten state or that it was bigger than the earth, he was accused of heresy and was not allowed to enter the great temple and no government job was open to him. Babylonians believed that the sun was the lamp of their great God, who lighted it in the morning and extinguished it at night. They could not tolerate any new idea, which went against their traditional belief.

Anaximander, another Greek philosopher, (611 - 547 B.C.) propounded a new theory about the creation of the universe which was contrary to the traditional belief of the Babylonians. He said that in the beginning there was only one thing which cannot be defined or described. It was infinite in time and limitless in space. A part of this unexplainable thing condensed and produced matter. Out of this matter different

things came into being. The condensation of that unknown substance was not uniform. Stones and metals were produced, where degree of condensation was highest and plants and animals were created where it was not so thick. The air and water came into being where it was thin.

Whatever the Greek philosopher had said in 600 B.C. about the creation of the universe has proved to be correct. All eminent scientists say that in the beginning there was nothing but hydrogen. But no one knows how hydrogen came into being. It is actually what Anaximander had said that it was not known what that infinite and limitless object, which produced matter, was.

It is most probable that the undefinable thing which produced hydrogen still exists; if not in our galaxy in some other galaxies. But after 2,600 years and in spite of the progress which has been made in the science of astrophysics we have not been able to find out the thing which was the cause of the origin of the universe, that is, we have not gone even one step further than the great philosopher of Greece.

An atom of hydrogen, which is the lightest atom, has only one electron and one proton. The electron rotates around the proton. No one has enunciated a theory and told us how the original undefinable thing was converted into electrons and protons which have negative and positive charges. We also do not know which was created first, the electron or the proton, or whether both came into being together.

Whatever has been said in this connection from the 19th century till today is only hypothesis and nothing has been added to our knowledge about the origin of the universe from the time of Anaximander till today.

Just like the theory of Anaximan, the theory of Anaximander reached Babylon and was accepted by a number of people, but no one was accused of heresy. The reason was that unlike the rising and setting of the sun, which people saw every day, no one had seen the origin of universe.

In the 2nd century of the Hijra it was only in the Muslim countries that the people had the freedom to say and write anything about heavenly bodies. That is why Jafar as-Sadiq could propound new theories about the sun, moon and planetary bodies. Because he was in a Muslim country no one accused him of heresy when he said that the earth rotates on its own axis which causes interchange of day and night.

We have stated in previous chapters that Euclid had discovered that the earth rotates around the sun, but he did not know that it also rotates on its own axis which causes day and night. Euclid could not publicise his theory of rotation of the earth round the sun because it was against the traditional belief and daily observation of the people.

Even one thousand years before the birth of Christ, it was known that earth is a sphere. Arabs received that knowledge from Egyptians. The well known geographer al-Idris, who drew geographical maps in the 5th century of the Hijra, knew that the earth is round, but to discover that this spherical earth rotates around the sun required an above average insight and intelligence.

ROTATION OF THE EARTH ON ITS AXIS

Vasco de Gama, who discovered the route to India, Columbus who discovered America and Magellan, who tried to go around the world, had not undertaken their journeys to make discoveries. They had material benefits in mind. They knew that the earth is round, but there is nothing to show that they also knew that it rotates on its own axis.

Galileo of Italy was a great physicist, mathematician and astronomer. We owe a great debt of gratitude to him for his contribution to science. He knew quite well that the earth rotates around the sun, but most probably he did not know that it rotates on its own axis also. When the Organization of Inquisition forced him to repent and ask for mercy, it was not for stating that the earth rotates on its axis. It was for his statement that the earth rotates around the sun.

In the year 1577 A.D., fifty years after Magellan, Francis Drake started on his journey round the world. This was also undertaken for material gains. When Drake began his journey, it was common knowledge that the earth is round, but the intelligent English adventurer was quite ignorant of the fact that the earth rotates on its axis. He believed that the rising and setting of the sun were caused by the rotation of the sun round the earth.

It was so difficult to comprehend and believe that the earth rotates on its own axis that the eminent French mathematician Poincare, who died in the year 1912, made fun of this theory. He clearly stated that he did not believe that the earth rotates on its own axis. When such a great scholar like Poincare, who lived in the 20th century refused to believe that the earth rotates on its axis how could the people who lived in the 1st and 2nd centuries of the Hijra believe in the theory of Jafar as-Sadiq that the earth rotates on its own axis.

The rotation of the earth on its own axis could be proved by observation only. When astronauts landed on the surface of the moon, and directed their telescope towards the earth they observed that it was rotating slowly on its axis. In the beginning even space travellers could not see with their own eyes rotation of the earth on its axis, since they had no fixed station. They were travelling in their space crafts and going round the earth every ninety minutes or so. At that high speed it was not possible to observe the motion of the earth.

There is no star in our galaxy which does not rotate around itself. All of them follow the laws of mechanics which govern the movement of heavenly bodies. Our own sun also rotates on its axis and completes one rotation in 25 days. The laws which govern the rotation of stars makes our space ships also spin in space.

After he invented the telescope, Galileo saw the earth rotating round the sun like any other planet. He also saw through his telescope that all stars spin. He should have said that the earth like any other heavenly body, rotates on its axis, but we do not find anywhere that he had ever said that. He was forced by the Organisation of Inquisition to deny the rotation of the earth round the sun. Was it due to fear of the Organization that he did not say that the earth rotates on its axis? If he had said anything about the rotation of the earth after his recantation and appeal for mercy no one could have saved him from being burnt alive. The breaking of the pledge given by him would have been a proof of his bad faith. Galileo did not say anything in his lifetime about the spinning of the earth and after his death, his writings did not show that he had come to know about it.

Tycho Brahe, who died in the year 1701, belonged to a noble family of Denmark. Unlike Kepler of Germany, who was a pauper, Tycho was very rich and used to throw big parties. He had a vast knowledge of astronomy. Without his help, Kepler could not have discovered his three famous Laws of Planetary Motion. Tycho had discovered that the earth rotates round the sun. He could publish his theory because no branch of the Organization of Inquisition existed in Denmark, a Protestant

kingdom. In spite of his vast knowledge and extraordinary intelligence he was unable to discover the earth's rotation on its own axis.

All the great scientists of the world paid their highest tribute to Kepler for his three Laws of Planetary Motion. Even today anyone who reads these laws cannot fail to appreciate his scientific achievement. One of the three laws discovered by him says that the orbits of planets including the earth, which rotates around the sun, are not circular, as Copernicus had thought, but they are elliptical and that the sun is one of the two focuses of the ellipse. The great German scientist proved his knowledge and his mental power by his three laws but he failed to find out about the spinning of the earth on its own axis.

All the great scientists, whose names have been mentioned above and who had discovered the Laws of Planetary Motion failed to discover that the earth rotates on its own axis. It is, therefore, highly surprising that in the 2nd century Hijra Jafar as-Sadiq, who lived in Medina, which was not a centre of knowledge and learning, made that great discovery. He clearly stated that it was illogical to think that the sun rotates around our earth creating day and night. He said that one half of the earth is always in darkness and the other half in the light because the earth rotates on its own axis.

The centres of knowledge and learning in those days were Constantinople, Antioch and Jundi Shahpur. Baghdad was not very important and had not become a centre of knowledge. But no one from those places discovered the cause of the interchange of day and night.

When Jafar as-Sadiq made that discovery did he know the Laws of Mechanics of the stars and did he know that when two forces work on an object in such a way that one force pushes it away from the centre and the other force pulls it towards the centre it starts to spin? He definitely knew about these laws when he said that the earth rotates on its own axis, which produces day and night. Without the knowledge of these laws it would have been impossible for him to make that discovery.

THEORY OF THE ORIGIN OF THE UNIVERSE

Some people might say that it was only by guesswork that Jafar as-Sadiq (A.S) said that the earth rotates on its own axis. Sometimes it happens that guesswork proves to be correct. But the question arises as to why no one else had guessed that for such a long time. This proves that he knew the laws of astrophysics, which enabled him to make that discovery. If he had not known those laws, it would have been impossible for him to discover the rotation of the earth on its axis. This discovery could not have been accidental. One must know the cause to know the effect. Jafar as-Sadiq did not say what led him to come to that conclusion, but what he has said in respect to many other problems of physics, are exactly according to modern theories of science.

His other wonderful theory is about the origin of the universe. When scientists read this theory they confirm that it totally agrees with the modern theory, which has not yet become a law of physics. It may be right; it may be wrong. The theory of Jafar as-Sadiq is also in the same category. It cannot be called a law of physics. However, it has the unique distinction that it was enunciated 12 centuries ago, but it agrees with our modern theory. It reads as follows:

"The universe was born out of a tiny particle, which had two opposite poles. That particle produced an atom. In this way matter came into being. Then the matter diversified. The diversification was caused by the density or rarity of the atoms."

In the above theory two opposite poles are two negative and positive charges of an atom. The two charges were the cause of the creation of the atom. The atom produced matter. Varieties in matter are due to the presence of more or less atoms.

We have read in the previous chapters that some Greek philosophers, who lived in 5th and 6th centuries B.C., had enunciated theories about the creation of universe. Democritus had also put forward a theory of Atoms and the creation of the universe. It is possible that Jafar as-Sadiq had knowledge of those theories and used them for working out his own theory.

Most probably he got knowledge of the theories of Greek philosophers through Coptic scholars of Egypt. He studied those theories, perfected them and produced his own theory, which is acceptable to modern scientists. No one so far has presented a theory about the creation of the Universe which is better than his theory.⁽¹⁷⁾

The most significant point in this theory is the description of two opposite poles. The importance of this point was realized when the presence of two opposite poles was proved by modern science. Today it is an undisputed fact in atomic science and electronics.

Greek philosophers and the learned scholars of Alexandria had discovered that there are two opposite forces in life. Some of them said that every thing can be identified by its opposite, but they themselves do not seem to be sure of what they had said. On the other hand in Jafar as-Sadiq's theory two opposite forces are clearly and specifically defined. He expressed his views clearly and unconditionally without qualifying his statement with "ifs" and "buts". This shows that he was sure of what he was saying.

Shias believe that whatever he has said about astronomy, chemistry, mathematics, physics and the creation of the universe was through his divine knowledge. But a historian cannot accept that Jafar as-Sadiq had divine knowledge. One who attended classes run by his father and studied there for many many years cannot be said to have divine knowledge. We do not think that Shias would deny that he learnt the alphabet from others. How can a man, who learnt letters and other elementary

(17) Presence of coptic scholars in Egypt at the time of the Arab Conquest or afterwards is a myth. See Introduction.

things from others be considered to have divine knowledge.⁽¹⁸⁾

Every scientist and every scholar who reads his theories will realize and acknowledge that Jafar as-Sadiq was a genius and able to make important discoveries because of his great intellectual power. But they would not accept that he made those discoveries by divine knowledge.

When Jafar as-Sadiq (A.S.) was asked as to when the universe came into being, he replied: "It was always there. If you ask me the same question for the whole of my life, I would give the same reply." It clearly shows that he considered the universe to be eternal.

"Can you tell us the date of birth of the universe?" he was asked.

"No, I cannot tell you the date of birth of the universe," he replied.

Some Shias believe that Jafar as-Sadiq (A.S.), who was an Imam and as such had unlimited knowledge, knew the date of birth of the universe, but he did not want to tell anyone. He remained silent not only in that case but in many other cases as well. Whenever he thought that it was not in our interest to know some of the secrets of Allah, he remained silent.

It is reported that a number of Shia leaders have said that Jafar as-Sadiq (A.S.), who was keen to spread knowledge, would have definitely told the date of birth of the universe if he knew it. It was simply beyond the sphere of his knowledge. The Imams were human beings. They could not do the impossible and did not know what was not possible for them to know.

(18) Shia scholars and historians believe that Jafar as-Sadiq (A.S.) had divine knowledge. It makes no difference if others do not. There is no historical evidence to prove that Jafar as-Sadiq (A.S.) learnt anything from anyone other than his father. Shias also believe that it is the Imam, who has divine knowledge. He transfers that knowledge and other secrets of Imamhood to his successor before his death. Jafar as-Sadiq had divine knowledge when he became an Imam after the death of his father. There are no two Imams at one and the same time.
(Translator)

Some Shias went to the extent of saying that even Allah cannot do what is impossible. He cannot make a part equal to the whole. The controversy whether Allah can do the impossible or not lasted for centuries.

Those who believed that Allah can do things, which are impossible, argued that it is because of our limited knowledge and power that many things seem impossible to us. Lifting a weight of 20 kilograms is impossible for a boy of 2 years of age. But it becomes quite easy for him, when he grows up and becomes strong. It is simply impossible for us to bring someone back to life, whose body has decomposed, disintegrated, turned into dust and scattered in the air, but it is not impossible for Allah, who would raise the dead so that they may give an account of their deeds and receive their reward or punishment. If we do not believe in that we are not Muslims.

THEORY OF OPACITY AND TRANSPARENCY OF MATERIALS

Jafar as-Sadiq (A.S.) made many discoveries in physics which no one had even dreamt of before him and no one could think of after him. One of the laws worked out by him is about opacity and transparency of materials. He said that materials which are solid and absorbent are opaque, and materials which are solid and repellent are more or less transparent. When he was asked about the thing which is absorbed by an opaque material he replied, "HEAT."

Today this theory is one of the Laws of Physics. How wonderful it is that in the 2nd century A.H. (7th century A.D.) he could enunciate such a new and unique theory.

If we put the question to one hundred persons today as to why one substance is opaque and the other transparent, not even one of them will give the correct answer. According to the law of physics anything which conducts heat, electricity and magnetic waves is opaque, but those things which are poor conductors of heat, electricity and magnetic waves are transparent.

Jafar as-Sadiq did not say a word about electricity and magnetism. His theory is, therefore, not complete. However, it does not reduce its importance. The man who could discover the cause of opacity and transparency of materials, was definitely much superior intellectually to his contemporaries. It would not be an exaggeration to say that he was a true genius.

His discoveries were not confined to the field of science only. He made great contributions to other branches of knowledge as well. We shall discuss some of them in the next chapter.

The beauty of his theories lies in their simplicity of

expression. Experience shows that theories which are expressed in simple terms spread quickly among the people because they are retained in memory. The simpler a theory the sooner it spreads among common people. Maxims, proverbs and short quotations, which are in the same category, have sometimes crossed their national boundaries and spread throughout the world. Different people have adopted them and made them a part of their literature.

MAXIMS, SAYINGS AND SHORT QUOTATIONS

Jafar as-Sadiq (A.S.) has to his credit a number of maxims, sayings and short quotations. Many of them have spread throughout the world. Most people have accepted them without knowing their source. His following maxim is an example:

"When someone is in pain he thinks of himself."

The above maxim first spread in Medina. Then it was adopted by the people of Asia and Africa. Gradually it went to Europe. Finally, it reached the continent of America. Whoever heard it agreed that it was correct. This maxim is so precise, true and exact that Marshal McLuhan, the well known Canadian scholar has considered it as a Law of Psychology and said that when we have some pain in our body we cannot forget ourselves and when we have no pain, mental or physical, we tend to forget ourselves.

Because of its simplicity and veracity the above maxim spread and was adopted by all countries of the world. Anyone can try to find out for himself whether it is true or not. Whatever one's power of tolerance he cannot forget himself when his body is in pain. It reminds him that he is alive.

JAFAR AS-SADIQ (A.S.) AND SHIA RELIGIOUS LITERATURE

Jafar as-Sadiq (A.S.) has done great service to Shi'ism. Not only did he produce great Shia scholars and scientists, he created Shi'ite religious literature, which strengthened the Shia sect.

It is a well known fact that the literature of a nation strengthens it and keeps it alive. Many nations have survived only because of their literature. The Greeks are a splendid example. They have survived because of their remarkable literature, otherwise they would have been wiped off the face of the earth.

Before Jafar as-Sadiq (A.S.) Shias had two very learned Imams. One was Ali ibn Abi Talib and the other Mohammed al-Baqar (A.S.), but they did not create a literature for the Shias. Either their knowledge was not so vast as that of Jafar as-Sadiq or they did not realize that it was necessary for the Shias to have a literature of their own.⁽¹⁹⁾

Jafar as-Sadiq thought that Shias should have an intellectual base, so that they may not be obliterated by any

(19) Shias believe that the main source of divine knowledge of their Imams was Allah Himself. He gave that knowledge to Prophet Mohammed (SAW) who passed it on to Ali (A.S.). Through him it was transferred to his successors, one after the other, till it reached Jafar as-Sadiq (A.S.). Therefore, the question of one Imam having more knowledge than the other does not arise. Each Imam did what was required of him under the then present circumstances. After defeating and annihilating the Umayyads, Bani Abbas turned against the Allawites, who had a very strong spiritual base-Shi'ism. To undermine it they encouraged sectarianism. Many new sects appeared in that period. All of them were hostile to Shias and had the support and backing of the ruling party. Jafar as-Sadiq (A.S.) saved them from destruction by creating Shia jurisprudence. (Translator)

change of leadership. He was of the opinion that for the support and strength of Shias a rich literature was more important than an army of soldiers. An army could be defeated by a superior force, but a rich and vast literature cannot be destroyed. This shows that besides his knowledge of science and literature, he had political acumen as well.

The thought of creating a Shia literature did not come to his mind gradually. He had this object in mind when he started taking classes. He knew that the sooner the Shia literature was created the better for Shias, because it would help them to surpass all other Muslim sects, which had no literature of their own. While he was planning to create Shia literature, it had not come to the mind of the leaders of other sects that their follower should have a literature of their own.

Subsequent events have proved that he was right. After the disappearance of their 12th Imam, Shias lost their focal point which had kept them together. They had no institution like a church with elaborate arrangements, which could have served them as a permanent spiritual centre. Thanks to literature produced by Jafar as-Sadiq, that more than 12 centuries after his death, the Shia movement is still alive and strong and there is every sign that it will remain so in future.

He drew the attention of Shia scholars to the necessity of having a rich Shia literature. He said that it would be a guarantee for the safety of their faith. It was therefore their duty to expand it as much as possible. If anyone was not able to do that, he should at least try to spread it among the people.

Some persons might say that this was nothing new or strange. Spiritual leaders of all religions made the same endeavour. Our reply to them would be that efforts of all other religious leaders were limited to preserving their religious traditions only and not expansion of literature.

The 2nd century is considered to be the golden period of the Orthodox Church of Antioch. Because of its precedence over all other churches it is considered to be the real Christian Church. But in the past eighteen hundred years there has been

no addition to its literature. During this long period many international conferences were held and Orthodox bishops went to different parts of the world to attend them, but there has been no change in their views and nothing was added to Orthodox literature.

The first Orthodox monastery was built at Mount Athos about 1,500 years ago, but the people still read the same books, which they used to read before and they hold the same views that they held before.

On the contrary, the expansion of Shia literature, generally speaking, has been continuous. There have been some periods in history when its progress was interrupted, but after the end of that period it started once again to expand at a rapid pace. The knowledge of Shia scholars was vast and deep and they tried to expand their literature.

Daniel Rops, the author of *"Life in the Times of Jesus Christ"* and *"The History of the Church"* writes that Catholic literature remained stagnant for one thousand years and no addition was made to it. Catholic priests merely kept traditions alive. He remarks that during that long period many pious and devout Christians, men and women, were born whose names appear in history, but none of them made any contribution to Catholic literature.

The Renaissance period not only encouraged the spread of different sciences in Europe, it also helped in the expansion of Catholic literature. However, most of the writers were not priests. Daniel Rops, for example, was not a priest. He has done a great service to Christians by writing *"The History of the Church"*. This book has been translated into many languages. There is no house of a Catholic in Europe, which does not have at least one copy of it. Ernest Renan, the famous French philosopher of the 19th century, was not a priest. He was not even in the good books of the Catholic church. His book, *"Jesus Christ"* is one of the best books of Catholic Christians.

It may be said that the Orthodox and Catholic churches did not work for the expansion of their religious literature for the

fear of introducing innovations. These fears were false. There has been expansion of Catholic literature in the 20th century without any innovation.

It also cannot be said that the Orthodox and Catholic churches were handicapped by lack of funds. Both of them were very rich. Today the resources of the Orthodox Church are limited, but the Catholic church is very rich. It is the richest organization in the world. The current assets of the Catholic Church, which has its centre at the Vatican in Rome, are estimated to be about one hundred thousand million dollars.

No bank in the world can boast of such an amount as its current assets. In spite of its riches, the Catholic Church did nothing for the promotion of its literature.

As a matter of fact Orthodox and Catholic priests followed their old traditions for such a long time that they were incapable of making any progress at all.

Jafar as-Sadiq started his movement in the 2nd century Hijra (7th century A.D.). He instilled in the mind of every Shia scholar that it was his duty to endeavour, according to his capacity, for the progress and expansion of his religious literature, which was considered to be the only safeguard of Shi'ism. Shia scholars, who were well known for their poverty, had to make great sacrifices for this missionary enterprise. As a result their religious literature grew and expanded at a steady pace.

Jafar as-Sadiq knew that the Shias were small in number; they lived in Arabia and elsewhere in small groups; sometimes their number did not exceed more than a few persons; they had no political clout and were not in a position to acquire power. Therefore, the only thing, which would strengthen Shia movement and attract new adherents, was to expand Shia literature.

He could not create a big establishment for the Shias because the Arabs did not have the know-how to set up and administer big organizations. Romans were experts in enacting laws and establishing organizations. Orthodox and Catholic

organizations got their inspiration and expertise in establishing organizations from the Romans and thus established their churches. The only thing he could do, and did, was to lay the foundation of an educational institution from which the Shia literary movement began.

In this institution scientific problems and religious topics were discussed freely. It must be noted that we cannot find so much freedom of expression in the religious code of any other Muslim sect as in Shia Jurisprudence, whose author was Jafar as-Sadiq (A.S.) himself.

FREEDOM OF EXPRESSION IN SHI'ISM

Shia religious code, which was formulated by Jafar as-Sadiq (A.S.), was much superior to the religious codes of other Muslim sects, because it allowed free discussion of religious matters. For that reason Shia doctrine appealed to the people and spread even before the close of the 2nd century of the Hijra and became a model for all other sects of Islam. All Muslims became convinced of the advantage of freedom of expression in religious matters.

Some people are of the opinion that free discussion of religious matters started in Alexandria. This is not true. The Institute of Alexandria was a secular institution. Scholars in that centre of knowledge were interested in philosophy, astronomy, physics, chemistry, pharmacology and to some extent in mechanics. They were not interested in religion. Some scholars were Christians and some were Jews, but they did not discuss religious matters in a secular place.

King Ptolemy I, who established the Great Library of Alexandria, was from Greece. Ptolemaic kings ruled Egypt for about two hundred years. They worshipped Greek gods, but their religious views were not imposed upon the learned people of the institute.

Free discussion of religious matters started when Jafar as-Sadiq formulated the doctrine of the Shia sect. He blended science and religion together. Under his guidance scientific problems and religious matters were discussed freely. Finally they became inseparable. As a result, Shia scholars started proving the principles of Shi'ism scientifically. Other religions also started proving the principles of their religion according to the laws of science.

Before Jafar as-Sadiq (A.S.) the principles of Islam, just like those of Judaism and Christianity, were not proved by

scientific laws. Orthodox priests and many knowledgeable persons were of the opinion that religion had nothing to do with science. This was a subject which concerned the hearts and feelings of the people and not their brains. Many Catholic priests believed in the separation of religion and science. They did not mean that religion could not be proved by scientific reasoning. What they meant was that in cases where religious tenets could not be proved by reasoning they should not be taken to be defective, imperfect and wrong. They said that Christianity was based on love and not on logic. That was the reason why in a religious school, which was known as a seminary, no scientific subjects were taught.

In the Middle Ages, Christian Jurisprudence, which was known as canon law, and some other subjects were taught in Christian schools, but not physics, chemistry, mathematics, medicine and mechanics. Philosophy was excluded from their curriculum, as it was considered to be against Christian doctrine. Jafar as-Sadiq (A.S.), who codified Shia Jurisprudence was the first religious leader who started teaching all the above subjects in Shia religious institutions.

His lessons in philosophy were limited to what had reached him from the classical philosophers of Greece. At that time the books of Greek philosophers were not translated from Syriac into Arabic. Most probably the theories of Greek philosophers reached him through the learned scholars of Alexandria, who belonged to the School of Free Discussion. Coptic priests had no interest in philosophy.

In the Institute of Jafar as-Sadiq (A.S.) the topics discussed under philosophy were the theories of Socrates, Plato and Aristotle.⁽²⁰⁾

(20) Research scholars are wrong. The books of Greek philosophers were in Greek and not in Syriac. They admit that those books were not translated into Arabic when the Imams were criticising the fallacious theories of Aristotle and others and presenting their own correct theories. Having failed to find worldly sources of the knowledge of our Imams they have created some imaginary sources, otherwise they had to admit that the Imams had divine knowledge. First they created Coptic scholars and then scholars belonging to the School of

Since the foundation of teaching philosophy was laid by him, it became a traditional subject in the schools of the Shias. Gradually other Muslim sects followed suit, but the majority of them remained uninterested in philosophy. Even now some of them do not attach any importance to it and think that it has no connection, whatsoever, with religion. Philosophy was and still is part and parcel of Shia religious education.

Classes run by Jafar as-Sadiq were a combination of free speech and discussion. Students were permitted to criticise teacher's views, even his religious views, and accept or reject them as they liked. He never forced his views upon his students. What made them acceptable was his method of teaching and his faith in what he said. Whoever accepted his views accepted them by his own free will.

His students did not hope to get any job or any worldly reward. Those, who attended classes of his father, Mohammed al-Baqar (A.S.) were hopeful of becoming Qadis, since Walid bin Abdul Malik had promised that some of them, who had completed their education in his Institute, would fill those posts.

The students of Jafar as-Sadiq (A.S.) did not expect to receive anything from him as they knew that he did not possess any worldly wealth. He did not raise false hopes of establishing a Utopian state. On the contrary, they realized that they were incurring the wrath of the people in power, who considered them as their enemies and a potential threat for them in future. No one could molest them inside Medina, but they would have been in danger if they had introduced themselves as his students outside the city limits.

Before Safavids came to power in Iran, there were only a few Shia governments in the East. The most famous of them was the government of Buwahids. Buwahids tried to expand Shi'ism, but not by force. They made use of Shia religious literature, including the Tragedy of Kerbala, which took place in the year 61 of Hijra. In spite of the fact that Shias had no

Free Discussion. Egypt was in total darkness and there were no scholars when it was conquered by the Arabs. See Introduction. (Translator)

temporal power nor any material support they stood for hundreds of years against hostile governments. They prospered and Shia ideology spread simply because of the freedom of expression in Shia faith and their rich and dynamic literature.

The Jews of Europe also faced hostility of the people for centuries and survived without temporal power, but they had material support. They had money to lend. Common people, government officers and sometimes, even the rulers themselves, used to borrow money from them. Since they were dependent upon the Jew for their material needs, they did not let them be persecuted.

Even one thousand years after the death of Jafar as-Sadiq, who encouraged freedom of thought and speech in religious matters, many European countries were covered with a dark cloud of ignorance and bigotry. In France, Italy, Spain and other Catholic countries no one could say even a word against the dogmas framed by Catholic priests without risking his life, however unimportant and absurd they might have been.

Giordino Bruno, the Italian priest, was burnt alive in 1600 A.D. for saying something which had nothing to do with the principal doctrines or even secondary rules of Catholicism. He had said that after the age of maturity everyone believes in worldly matters according to his own experience and way of thinking.

From the time he grew up till he died at the age of 52, Bruno's mission was to help the poor and needy. He enjoyed making sacrifices to reduce the pain and suffering of others. From the time he became a priest of the Dominican Order, till he was thrown into prison no one returned from him disappointed if his need was genuine and reasonable. The door of his house was always open. It was not closed even at night. Whenever a needy person came to him at night he would get up and help him if he could.

The day Bruno was burnt, armed soldiers put a cordon round him so that the people might not come close to him. When he was tied to the stake, which was in the middle of a pile

of wood, the people, who had gathered there, started weeping and wailing. The executioner put the burning torch to the wood, soaked in oil. The wood caught fire and the flames covered Bruno. The smell of burning human flesh filled the air and the man who had spent his life in the service of others, yielded up his ghost with frightening cries. His righteous life could not save Bruno from a horrible death.

What Bruno had said was quite logical and reasonable, but the Organization of Inquisition took his simple statement to be against Christian Faith. The verdict given was as follows:

"Every Christian, when he comes of age, must believe what is in the Old and New Testaments and not according to his own knowledge and understanding. Bruno is a heretic since he has said that one should believe according to his own experience and way of thinking. The reason for his heresy is that the devil has penetrated his body. Therefore, he should be burnt alive to cast out the devil."

DEFINITION OF LITERATURE BY JAFAR AS-SADIQ (A.S.)

We do not know anyone who gave a better definition of literature than Jafar as-Sadiq (A.S.). He defined literature as follows: "Literature is the garment which one puts on what he says or writes so that it may appear more attractive." He did not say that it was not attractive without that garment, but he said that it would appear more attractive in that garment. Has anyone during the last twelve and half centuries given a more concise, comprehensive and logical definition of literature than him?

Jafar as-Sadiq said that it is possible that literature may have no knowledge, but there is no knowledge without literature. He has also said that every kind of knowledge contains literature, but every kind of literature does not necessarily contain knowledge. These are also concise and comprehensive definitions of relationship between knowledge and literature.

Very few persons in the world have had a keen interest in science as well as in literature. Jafar as-Sadiq was one of them. However, it is not known whether he was more interested in science or in literature.

The following couplet was written on the wall above his head, where he stood to deliver his lectures:

Someone who has no father is not an orphan.
An orphan is one who has no knowledge
of science or literature.

The secret of the strength of the Jafri school of thought was that religion was only one of the four pillars on which it was based. The other three pillars were science, literature and Irfan or gnosticism.

Never in the world has so much importance been given

in any religion to science and literature as in the teachings of Jafar as-Sadiq. He gave them so much importance that one wonders as to which is more important, religion or science and literature.

Jafar as-Sadiq (A.S.) was of the opinion that a believer must be well educated in order to have a firm conviction in what he believes.

The faith of an illiterate person is superficial and baseless. He does not know what he believes and why. Since his faith has no strong foundation, it is always shaky.

He gave examples of other religions to show how science and literature made their roots sturdy and strong. He said that when Islam spread from the Arabian Peninsula to other countries, illiterate persons embraced Islam soon but educated persons were converted only when it was proved to them that Islam is a religion of this world as well as of the next.

He considered science and literature as two of the most important parts of his system of religious education. He also believed that they were essential for raising the status of human beings and making them into good citizens. It was his firm conviction that in an educated society there is respect for the rights of others and mutual cooperation and trust among its members.

He believed that his system of education, which had four important subjects-Theology, Science, Literature and Irfan, was essential for the strength and survival of the Shias and would be more enduring and lasting than any structure of steel.

Out of the four basic subjects Theology, Science and Literature proved to be so useful and effective that the first half of the 2nd century, in which he lived, became the period of Renaissance of science and literature in the Muslim world.

Jafar as-Sadiq was not the only person who created that golden age, but without a shadow of doubt, he started the literary movement. If he had not taken the first step and given encouragement to scientists and men of letters, there would

have been no literary awakening and no Renaissance of knowledge.

Those who say that the Abbasid caliphs encouraged the spread of science and literature are mistaken. The first two or three of them did nothing but strengthen their own position. Those who came after them used to spend their time in worldly pleasures and paid scant attention to the cause of knowledge and learning. Out of 37 Abbasid caliphs only a few of them had any real interest in the advancement of knowledge. The rest of them were after the satisfaction of their own desires. However, it cannot be denied that the attention paid by some of them was effective in spreading knowledge in the Muslim world since the public treasury was under their control. They could, and did make handsome presents to poets and writers. That tempted others to acquire knowledge, attract the attention of the caliphs and receive big rewards.

Arabs of the desert were proud of their poetry. During the Pagan period it was a tradition that poems and odes were recited before tribal chiefs in the desert. It was also a tradition that the chiefs had to listen to them. Seldom were they not delighted by what was recited before them or failed to understand their meaning.

A German philosopher, Arthur Schopenhauer, has said that Arab chiefs used to spend their time listening to poetic recitations when they were bored, but that was not the only reason for their love of poetry.

According to him, every activity apart from earning one's living, is due to lack of work. We play games, take walks, give parties and sleep late at night simply because we have nothing else to do. The following epigram appeared on the wall in his work place.

Anyone who invites you to lunch or dinner is your enemy; since he interferes in your work.

It was customary in Arabia that after reciting their verses the poets used to recite a few lines in praise of their chiefs, but

they did not exceed prescribed limits. Pagan poets did not indulge in exaggerations in praising of the chiefs and lowering themselves in their eyes. It was just as if a guest would praise his host. The chiefs usually rewarded the poets for reciting their verses, but never in the history of Arabia did anyone before Jafar as-Sadiq (A.S.) give any reward to the writer of a book in prose.

Some people think that when the poets in the pagan period recited verses in Makara Market Place they received money from the public. It was not so. The poets had self respect and self esteem. They took their reward from tribal chiefs only and considered this as their wages to which they were entitled. A poet could boast that he had obliged a chief by reciting a verse in his praise, but a chief could not claim that he had obliged a poet by giving him a reward. The poets recited verses in the Market Place of Makara for self-glorification and to establish their superiority.

The Quran was the first book of prose for the Arabs of the desert, but they did not consider it a piece of literature. They took it to be a miracle and over and above all-kinds of literature in the world. Although the Holy Book had shown them that literature could be created in prose, no one in the first century of the Hijra wrote any book in prose, except Ali ibn Abi Talib, Ali ibn Husain and Mohammed al-Baqar (A.S.).

It was Jafar as-Sadiq who aroused the interest of the Arabs in prose and made it a part of Arabic literature. It was customary on the Arabian Peninsula before Islam and for a long time afterwards, to reward the reciter of the best piece of poetry, but there was no reward for the writer of the best prose, because Arabs did not consider prose as a part of literature. Either Jafar as-Sadiq (A.S.) or his father, Mohammed al-Baqar (A.S.), was the first person to set a reward for the writer of the best piece of prose.

In the beginning there was a panel of three judges who selected the best article in prose and gave the prize. It consisted of Jafar as-Sadiq and two of his students. Two more members were added to the committee afterwards. When three judges

agreed as to which was the best piece of prose among the articles written by the competitors its writer was given the prize.

The most important factor which contributed to the expansion of Arabic prose was that Jafar as-Sadiq did not force the writers to write on any particular subject. They were free to choose their own subjects. Manuscripts were presented to him and he handed them over to the committee.

In the absence of prose, Arab thinkers could not express their ideas fully and preserve them for posterity. He liberated their thoughts from the shackles of rhymes and meters of poetry and opened the way for them to express their ideas freely in prose. He did not, however, reduce the importance of poetry in any way. He made both prose and poetry two important and inseparable parts of Arabic literature.

DEFINITION OF KNOWLEDGE BY JAFAR AS-SADIQ (A.S.)

Jafar as-Sadiq has defined knowledge as follows:
"Whatever a man learns is knowledge."

His firm conviction was that learning of science and literature was the personal and social duty of every Muslim if not his religious duty. Therefore, everyone should try to learn as much as possible. Irfan was the fourth pillar of his religious structure, but he did not consider it necessary for every Muslim to learn.

It was his firm belief that science and literature would not only enrich and strengthen Shias, they would make the Muslim nation as a whole, stronger than other nations of the world.

It was due to his endeavours in spreading knowledge among the Muslims that the 4th century of the Hijra became the golden period in Islamic history. Even the European nations benefitted from the scientific achievements of the Muslims.

When he was asked if one kind of knowledge was more important than another, he said: "We cannot give preference to one kind of knowledge over the other. All of them are important, but they differ in their usefulness. In our times the two most important and useful branches of knowledge are medicine and religion." By religion he meant the knowledge of religious jurisprudence.

He also said that the time would come when human beings would benefit from other branches of knowledge as well, although they were not of much use in those days. Every kind of knowledge, he said, had a practical use, which depended upon time.

He was of the opinion that during the long period of

their existence on the surface of the earth, human beings had spent very little time in the pursuit of knowledge due to the following reasons:

- (a) There were no guardians or teachers to encourage them to acquire knowledge.
- (b) They were lazy and lethargic. One must be willing to work hard to acquire knowledge.

Jafar as-Sadiq has said that if human beings had been on this planet for ten thousand years, they had not spent more than 100 years in the pursuit of knowledge. If they had spent more time in learning and educating themselves they would have by then made great progress and improved their lot.

In those days most people used to believe in the Hebrew calendar and thought that the earth was only 3,700 years old and that human beings had been on the surface of the earth for less than that period. Jafar as-Sadiq did not believe that the Hebrew calendar was correct. That is why he said: "Ten thousand years", meaning much more than what was shown in that calendar.

It can be said with confidence that he knew more about the creation of the earth than any of his contemporaries. He is reported to have told his students that stones of the mountain, which they saw in a solid state, were once upon a time red-hot and molten. Gradually they cooled down and solidified. This wonderful theory was propounded by him about twelve hundred years ago. Till the end of the 18th century scientists of Europe were in doubt whether the earth was hot and molten in the beginning. Before that time all of them believed that the earth had always been in a solid state as it is today.

It is a fact, as he had remarked, that human beings have not been very active in the search for knowledge. It is about four to five hundred thousand years that homosapiens learnt to walk on their two feet and freed their hands for work. They made tools and some implements, but made no further progress. It is only within one hundred thousand years that they learnt how

to make fire. Out of that long period, they spent about one thousand and five hundred years in the pursuit of knowledge. If they had tried to gain knowledge from the very beginning they might have solved all their problems by now, including, perhaps, the problem of death.

When Jafar as-Sadiq was asked as to who had absolute wisdom and when does a man start to feel that he knows everything, he replied: "Your question can be divided into two parts. In replying to the first part, I must say that no one except God has absolute wisdom. As regards part two of your question, I would like to say that knowledge is so vast that no one can acquire it all, even if he lives for thousands of years and spends all his life in learning. If we suppose that by spending thousands of years of his life, someone acquired all the knowledge, which is in this world, he would still be an ignorant person, if he travels to some other worlds. He has to start learning there from the very beginning."

His students asked him to elaborate further on the second question: "When does a man start feeling that he is rich in knowledge?" Jafar as-Sadiq replied: "I have already told you that, one who is in pursuit of knowledge, will never feel that he is rich in knowledge. Only an ignorant person, who is not in search of knowledge, will feel that he is rich in knowledge."

His students asked him: "What do you mean by other worlds?"

Jafar as-Sadiq replied: "In addition to this world there are other worlds also. Many of them are bigger than our world. There is also knowledge which may be quite different from the knowledge we have here."

"How many worlds are there?" asked his students.

"Only God knows", replied Jafar as-Sadiq.

Students asked: "How does knowledge in the other worlds differ from the knowledge in this world. Cannot that knowledge be acquired? How can knowledge, which can be acquired in this world not be acquired in other worlds?"

Jafar as-Sadiq (A.S.) replied: "Laws of physics, chemistry and other sciences in some worlds are the same as they are here. If one of us goes there, he can, surely, learn and acquire knowledge. But there are many worlds where the laws of science are totally different and beyond our comprehension. An inhabitant of this globe cannot learn anything in those places."

That statement of Jafar as-Sadiq remained a riddle for the learned people who came after him. Some of them did not believe it and said that it was unacceptable. Ibn Rawandi of Esfahan was one of them. He refused to believe in that theory of the Imam. He said that the human mind was capable of learning every kind of knowledge, whether it belonged to this world or to any other world. However, students of Jafar as-Sadiq believed in what their teacher had said.

By his theory of relativity Einstein opened a new chapter in the science of physics. It was finally established that anti-matter does exist and that the theory of anti-matter is correct. That discovery proved the truth of the statement of Jafar as-Sadiq that there might be some worlds where the laws of science would be quite different and we cannot learn anything there.

In the world of anti-matter, electrons of atoms have a positive charge and protons have a negative charge, while in this world and all other worlds of matter electrons are negatively charged and protons are positively charged. Therefore, in the worlds of anti-matter, the laws of physics would be quite different from those we have here. The rules of logic and reasoning in those worlds would also be different and therefore beyond our understanding.

It is possible that in a world of anti-matter a body which is submerged in water, may become heavier, while according to the Law of Archimedes, it becomes lighter when submerged in water in our world of matter.

According to the Law of Pascal when pressure is applied to any point on a liquid in a container it spreads equally to all parts of the liquid. Oil brakes in heavy transport machinery are

built on this principle. Pressure on brake pedals put pressure on a small amount of oil. The pressure spreads to all drops of oil. They, in turn exert very heavy pressure on the wheels and stop them from spinning. Probably, this law may not operate in the worlds of anti-matter.

It is possible that one may gradually learn strange laws of science in a world of anti-matter, if he goes there, just as Astronauts get used to weightlessness when they go round the Earth in rockets, but no one understands and accepts the things which are against his logic and reason.

If a man from this world goes to a world of anti-matter and observes strange and irrational phenomena such as heat freezing water and cold evaporating it and that the people there do not follow our rules of mathematics while making addition, subtraction, multiplication and division, he would definitely get confused.

Before concluding this subject we would like to mention the views of Greek philosophers about knowledge itself. Some of them were of the opinion that knowledge did not exist in itself. It was actually what the people perceived and what they understood about other things, their condition and the laws that governed them. A man who is born blind cannot know what Colour is and a man born deaf cannot know what music is.

They said that the lack of two senses did not mean that man could not learn arts and science. It was due to the absence of the inner sense that one failed to acquire knowledge. A mad-man has all his senses, but he cannot learn anything because he lacks the inner sense.

Another group of Greek philosophers held the view that knowledge existed in itself whether one learnt it or not. They said that there were always four seasons in the year whether one knew that or not; the sun and the moon rotate round the earth whether one has eyes to see or not.

Democritus said that knowledge was of two kinds - the knowledge which could be acquired and the knowledge which

could not be acquired. They could not get any knowledge about atoms even though the whole world is made up of them. Similarly they could not have the knowledge about the gods.

About one century after the death of Democritus some people criticised his atomic theory. They asked how he could say that the whole world was made up of atoms when he had no knowledge about them.

Defending their teacher, his disciples replied: "Democritus discovered atoms through his intelligence, but he could not learn anything about them through his senses. It is not illogical. There are many things in this world which exist, but are beyond the reach of our senses. We know by our inner sense about the existence of gods, but cannot learn anything about them through our senses. When we fall sick we know we are sick, but we cannot see the sickness itself."

Some Greek philosophers also believed that human beings were not capable of learning many things which existed in this world, but Jafar as-Sadiq had a different view. He said that knowledge was so vast and limitless that no one can learn all of it in his lifetime. He also believed that there was a kind of knowledge existing in some other worlds, which was beyond the comprehension and understanding of the inhabitants of this globe.

Izzuddin Abdul Hamid bin Mohammed well known as ibn-Hadid, a famous writer of the Abbasid period who was killed by Hulagu in 655 Hijra at the age of seventy years, has written profusely about Jafar as-Sadiq. He writes that even 200 years after his death, the teachers in Iran, Iraq and other Muslim countries quoted his statements and writings to support what they said. Even the teachers of the Sunni sect used to quote him as an authority.

When al-Qummi, a minister of the Abbasid caliph, al-Mustasim, asked ibn Hadid as to who was the most learned scholar in the past, he replied, "Jafar as-Sadiq".

A number of Shia writers have written excessively in

their books about the miracles performed by him, but they have written nothing about his knowledge of literature and science. The number of miracles mentioned in these books is so great that it seems that he must have been performing at least one miracle every day.

Many of his miracles are mentioned in *Bihar e-Anwar*, written by Allama Majlis, an eminent scholar of the Safavid period. He copied those miracles in his books from other sources. Another Shia writer, who has written in detail about his miracles is Abu Jafar Mohammad ibn Babuya Qommi, who lived in the 4th century of the Hijra. He was a great scholar. His book, *Men La Yahzar al-Faqih* is famous. He has written another book by the title of *Ayun ul-Ikhhbar al-Reze* in which he has mentioned the miracles of Ali ibn Musa al-Kadhim, the grandson of Jafar as-Sadiq.

Some Shia scholars have written that he had knowledge of about 500 different sciences, but a science scholar cannot believe in such stories. During his time, the number of sciences was not as large as it is today, nor was the knowledge of mankind increasing at the rapid pace as it is increasing today. Because of the expansion of industry, one branch of science gives birth to another. For example atomic science has expanded so much and so fast within the short period between 1940 to 1970 that no one in his life time can specialize in all the branches of atomic science. The same can be said of the developments in the field of war weaponry.

In the past, science and technology did not change and expand so rapidly as they do today. It is possible that we may have more than 1,000 different sciences and branches of science but in the 2nd century of the Hijra, the number of sciences was not 500.

The important factor which contributed to the spread of the belief that Jafar as-Sadiq had supernatural knowledge and that he knew about 500 kinds of sciences was that he had explained many scientific principles which were previously unknown to the people.

The reason why Shia scholars have written that he knew about 500 kinds of science was that in those days learned people were very generous in their classification of knowledge. They used to classify it into very small branches. Today mathematics is one subject and includes algorithm, trigonometry and calculus as well but in those days, it was divided into the following subjects: addition, subtraction, multiplication, division, square roots, cube roots, arithmetical progression and algebra.

In the same way every branch of literature was considered to be one subject. The knowledge of meters of poetry was one subject and was known as *Ilm al-Buhur* (knowledge of meters). Similarly the knowledge of rhymes was taken to be a separate subject and was called *Ilm al-Qawafi* (knowledge of rhymes). If someone had memorized five odes of a famous poet, he boasted of knowing five *ilms*.

Another reason why Jafar as-Sadiq was given the credit of knowing 500 kinds of sciences was that he was considered to be an Imam. Shias believe that Prophet Mohammad (SAW) and their Imams had knowledge of everything except the knowledge of those things which Allah has reserved for Himself. This knowledge was given by Allah to His Prophet and through him to the Imams.

Some gnostics have held the view that the wisdom and knowledge of Prophet Mohammad (SAW) and of the Imams was equal to the wisdom and knowledge of Allah but Shia scholars do not subscribe to that view. They believe God to be the Creator and the source of all wisdom and knowledge and that the Prophet of God and the Imams were His creation and His servants. They never considered themselves as His equal in any respect.

According to the Shias, Allah is the first, who had absolute knowledge, next comes His Prophet, who passed on knowledge to the Imams. They do not put any limit to the knowledge of Allah, but they hold the view that the knowledge of Prophet Mohammed (SAW) and the Imams was limited by Allah. They assert that just as Allah is infinite, His knowledge is

also infinite. Moreover, His knowledge is not separate from Him, so that it might have been acquired by Him. Other Muslim sects also believe that all the attributes of God, including His knowledge, are not separate from him. They also believe that God has no beginning and no end.

To the question of whether God knows that He has no beginning and no end, their answer is, "Yes". When someone asks Muslims how God knows Himself, when He has no beginning and no end, they say that to know oneself, it is not necessary to know one's beginning and end. They contend that since God has absolute wisdom and knowledge He knows Himself as well as the fact that He was not created and would never cease to exist. He is above all rules of our logic and reasoning. His absolute knowledge and wisdom gives Him absolute power which is beyond the reach of our imagination and understanding.

Just like the classification of knowledge, the division of knowledge in the 2nd century Hijra into two groups - Ilm al-Maqul (rational science) and Ilm al-Manqul (traditional science) was also illogical. Science cannot be divided in this way. As a matter of fact, no branch of knowledge can be called traditional knowledge. Only that part of history may be called traditional which cannot be explained by logic and reason.

The verses of Shakespeare are part of English literature and they must remain as they are. They may be referred to as Ilm Manqul (traditional knowledge). However, no one today would accept that the history of the battle of Waterloo is traditional knowledge, because in order to understand it, one must use his intelligence and reasoning.

SCRUTINY OF HISTORY BY JAFAR AS-SADIQ (A.S.)

Twelve and a half centuries ago, Jafar as-Sadiq used his brain to review historical events. He scrutinized those events in the same way as do the historians of today.

Herodotus, the great Greek historian, writes in the preface of history: "I do not accept whatever is not acceptable to my logic and reason", yet we find in the history books written by him some stories which do not stand the test of reason.

Jafar as-Sadiq was the first Muslim scholar who made critical study of history a necessity. He said that no historical event should be accepted without due consideration and scrutiny.

He thus became the teacher and guide of Ibn Jarir al-Tabari, who learnt from him that he should write only those facts in his history which were acceptable to logic and reason.

Most probably there were books of history in Iran before Islam, but we do not have even a single page from them today. The inscriptions from the Achaemenian and Sassanid periods which are available show that facts of history were not mixed with fiction. In these inscriptions there is not a single word which can be described as part of a fairy tale. What we find in them is the reflection of the faith of the kings under whose orders they were written. However, in the absence of a history book we cannot say with certainty that Iranians wrote nothing but facts in the pre-Islamic period.

Jafar as-Sadiq used to scrutinize historical events. He did not consider a book of history of any value in which facts were mixed with fiction. He said that such books were of no use to the society. The knowledge of history was useful only when the coming generation could learn from the mistakes made by

the people in the past. He thus laid the foundation of critical study of historical events and created the science of history.

According to ibn-Hadid he was the first Muslim scholar who used the word "Tarikh" for history. The word Tarikh existed in the Arabic language, but it was not used in that sense. The Arabs before Islam did not have books in prose so that they might have given any name to them. Historical events were recited by poets in verses. Before Jafar as-Sadiq used the word Tarikh for history, books containing historical events were known as the books of traditions.

It is accepted today, as he has said, that the greatest use of history that mankind may learn a lesson from the events which had caused misery and misfortune to the people of the past.

Freud, the Austrian psychotherapist, was of the opinion that the most important use of history is to learn lessons from past events. However, the ego, which is the natural instinct of human beings, will not let them do so. It assures them that what happened to the people in the past and ruined their lives would not happen to them, because they live in a different period and are more intelligent and stronger than the previous generations were.

COMPOSITION OF THE HUMAN BODY

Just like any other Muslim, Jafar as-Sadiq (A.S.) also believed that human beings were made from the earth, but no one could dream either during his lifetime or after his death of what he has said about the composition of the human body. If anyone has said anything in this connection he must have heard it from him or from one of his students.

He said that whatever is in the earth is also in the human body, but all elements are not in the same proportion. Four elements are in very large quantities, eight elements in small quantities and eight elements in minute quantities.

This is such a strange theory that one starts wondering whether he actually had divine knowledge, as the Shias believe. It is unbelievable that any scholar, however, great he might have been, could make such a great discovery through his human knowledge alone. Here lies the difference between a genius and an ordinary person. One who is a genius perceives what others cannot. Jafar as-Sadiq was a genius and was able to perceive what ordinary persons could not.

Some people believe that we have every kind of knowledge in our subconscious mind, but a thick curtain, which hangs between our conscious and subconscious minds prevents us from scanning the unlimited field of our subconscious mind and making use of the knowledge stored therein. The difference between an ordinary person and a genius is that an ordinary person does not know what is in his subconscious mind, but a genius has easy access to the wealth of knowledge, which lies hidden, in the treasure house of his subconscious mind.

Henry Bergson, the French philosopher, said that every atom, which exists from the time of the creation of the world or the universe has knowledge of everything that exists on the surface of earth. Just like the atoms, every cell of the human

intelligent, educated and technologically advanced beings. Marconi could not extend the horizon of his experiments. The telescope at his disposal was very weak and he could not see through it anything beyond our solar system. At that time radio telescopes were not invented and the 5 meter thick lens of the Palomar Observatory had not been manufactured through which Astronomers can see galaxies which are at a distance of two thousand million light years from our earth. Even after construction of the big telescope we have not been able, so far, to establish any contact with the unknown beings of the other worlds.

LIVING BEINGS IN OTHER WORLDS

Jafar as-Sadiq learnt many things from his father and discovered many things by himself. It was his own discovery that the earth and the air are not elements. It was he, who had found out that there is an element in the air, which helps in combustion and acts on metals and tarnishes them. It was also his theory that in the other worlds there are two kinds of sciences- the sciences which we can learn and the sciences which we cannot learn.

His other interesting theory is that there are living beings in other worlds, who by their advanced knowledge might be trying to contact us. Since we do not know them nor understand their language, we do not realize that they want to get in touch with us and talk to us.

He said that the Quran has mentioned the names of jinns, whom we cannot see. It is also prophesied in the Quran that the day will come when the humans and the unknown beings, whom we cannot see, will meet and live together.

No one before him had said anything about the presence of living beings in other worlds, who might be trying to contact us and no one for centuries after him said a word in this connection. It was in the 19th century that Camille Flammarion of France raised this issue and presented his theory about the possibility of establishing contacts with unknown beings of the other worlds. However, he could not test his theory, since technology had not advanced sufficiently at that time and he had no means of communication at his disposal.

In the year 1920, Marconi of Italy, who was the first to make practical use of wireless technology, stated in a meeting of the officers of Italian Navy that in the wireless station on his ship, he received radio waves, which, without a shadow of doubt, were being sent to the people of the Earth by some

body knows what is in the world. It also knows the history of mankind from the beginning of the world till today. Gaining access to the boundless field of the subconscious mind has been called by him as "The Leap Of Life". He said that the Leap of Life of a genius is much higher than that of an ordinary person. He can make use of the knowledge which lies in the human cells.

Jafar as-Sadiq was either endowed with divine knowledge of the Imamate, as Shias believe, or his subconscious mind was linked to his conscious mind, as some people think, or else his "Leap of Life" was very big, as Bergson has said. Whatever may be the case, he was the only person among his contemporaries as well as those, who came after him, who had knowledge of the human body.

Twelve and a half centuries after his death his theory is confirmed today by science and there remains no doubt about its soundness and accuracy. What he did not do was to mention the names of elements which are present in the human body.

There are 102 elements in the earth and all of them are present in the human body. Some of them are in such small quantities that it has not been possible to discover their exact proportion.

His statement that what is in the earth is in the human body is not important and proves nothing. Anyone who believes that man was made from the earth must also believe in that. What proves that he was a genius is his theory that out of all the elements which are in the human body four elements are in large quantities, eight in small quantities and another eight in very minute quantities.

The above theory has been proved to be quite correct. The four elements, which are in large quantities in the human body, are Oxygen, Carbon, Hydrogen and Nitrogen. The eight elements which are in small quantities are: Magnesium, Sodium, Potassium, Calcium, Phosphorus, Sulphur, Iron and Chlorine. The other eight elements which are in very minute quantities are: Molybdenum, Cobalt, Manganese, Copper, Zinc, Fluorine,

Silicon and Iodine.

To detect the presence of these elements in the human body was not a simple task. The work began in the beginning of the 18th century with the dissection of the human body. Two nations, France and Austria, were pioneers in the field. In other countries the human body was rarely dissected. Orthodox and Catholic churches were deadly against it. It was not dissected at all in the East. In France and Austria also it was done very secretly because doctors could not defy the orders of the church openly.

It was Kean Paul Marat, who started dissecting human bodies in France on a large scale. In addition to dissecting them, he used to analyze tissues of the dead bodies to find out their composition. In this task he was assisted by other French scientists including Lavoisier. After Marat's death, his students continued his work.

From France and Austria it spread to other countries of Europe and then to all the continents of the world. Today there is no college of medicine and surgery in the world where human bodies are not dissected and analyzed.

Results of these analyses show that the ratio of major elements in human bodies is the same throughout the world as Jafar as-Sadiq had said, but there is a slight difference in the ratio of minor elements from place to place.

In the body of a healthy person, weighing about 45 kg there are 8.10 kg of carbon and 4.5 kg of hydrogen, provided he or she is not emaciated due to hunger or illness. All human beings in the world, black, white, yellow or mixed, have in their bodies, four elements-Carbon, Hydrogen, Oxygen and Nitrogen, in the same proportion.

These elements are always present in the same proportion whether a person lives at the Poles or in the Tropics, provided the age and body weight are the same. Thousands of experiments and analysis, made during a period of 150 years, have proved that the theory of Jafar as-Sadiq about the

composition of the human body is correct.

Some elements have still not been discovered in the human tissues or bones, but they are believed to be there. The presence of these elements was not detectable because they occur in very small quantities. However, the technology for detecting and discovering things which are very small is making progress and it is hoped that some day all elements, which are present in our bodies will be discovered. At that time we shall find out in what proportion they are and what is the effect of their imbalance upon our health.

Descartes, who is considered to be the father of modern research, has said that if we want to know the physical and chemical properties of a thing we must split it and go on splitting till it can be split no more and then study the smallest particles to find out the properties of that object. Scientific research in modern times is being carried out in accordance with this principle. But it was through the progress of technology and industry which made it possible to split an object into its smallest parts and give that theory a practical shape.

About 20 centuries before Descartes the same theory was presented by the Greek philosopher, Democritus. Improving his theory Jafar as-Sadiq has said: "If we want to know the properties of an object, we must divide it into its smallest parts and study these parts. We cannot find out the properties of water, when it is an ocean, we must study only one drop of it, if we want to discover the properties of water."

If industry had made no progress and not provided scientists with the means of splitting an object into its smallest parts, the theory of Descartes would have remained only a theory, just like those of Democritus and Jafar as-Sadiq.

In the times of Democritus, anything which could not be seen with the naked eye, e.g. an atom, was considered to be indivisible. But today, due to the advancement of technology, even one millionth of a millimeter is not indivisible.

REMOVAL OF A CALIPH UNDER ISLAMIC LAW

It has been reported by Ibrahim bin Tahman, a student of Jafar as-Sadiq, that the subject of the removal of an unsuitable caliph from his position was discussed in the class-room. The question was put to him whether there was any provision in Islamic Law under which an unsuitable caliph could be removed from his office. If there was no such provision should he not incorporate it in the Islamic Religious Code.

Before we proceed with the discussion of the above subject, we would like to make it clear that under the jurisprudence of the Shias, who believe in 12 Imams, the question of relieving an Imam of his duties does not arise, since he never was, and will never be found unsuitable to his office. An Imam is a Masum, that is, he commits no sin. He is a human being but his soul is pure and better than the soul of an ordinary person. The Imam is the best judge one can think of. He is not influenced by any one and he will never commit any act of injustice. When the complainant and defendant appear before him he knows who is right and who is wrong. Therefore, he makes no mistake in administering justice.

It is the belief of the Shias that an Imam does not know that injustice has been done to someone, until a complaint is lodged before him by the aggrieved party, or someone else draws his attention to that case. He gets full knowledge about something only when he himself wants to know.

In the opinion of the Shias, the Abbasid caliphs were not chosen by Allah. Some of them used to commit sinful acts openly.

Jafar as-Sadiq (A.S.) did not agree with his students to discuss the question of removing an unsuitable caliph from office. It would have caused open hostilities between himself

and the Abbasid caliph. Just like his predecessors, Hasan ibn Ali, Ali ibn Husain and Mohammed al-Baqar, he wanted to avoid bloodshed and fratricide among Muslims. Moreover, there has never been a provision in the constitution of any country in the world, except Greece, under which an unsuitable head of state could be removed.

Some independent city states of Greece, which had a democratic form of government, had a provision in their constitution for the banishment of an incompetent ruler. He could be exiled only if a two third majority of the parliament of the city agreed that he was incompetent and voted for his banishment.

We do not find any provision in the constitution of ancient Rome for the removal of a ruler by parliament, which was known as the Senate.

Even if a number of Senators were against a Caesar, who was the head of the state, they were powerless and could not remove him from office. There is a well known case of Marcus Porcius Cato who was dead set against Caesar, but could do nothing about it and eventually committed suicide in 149 B.C.

During a period of 1,900 years, 280 popes took charge of the office of the Papacy, but none was charged under the laws of the Catholic church and removed from office.

Some popes had to resign and some were forced to leave Rome, which was their capital, and live in Avignon, France. But those resignations and forced removals from Rome were due to the hostile attitude of some kings who were against them and not because of any legal action by the church itself.

The Shias hold the same view about their Imams as the Catholics hold about the popes, with the difference that in the eyes of the Shias, an Imam enjoys a very high position and is superior to other human beings.

Catholic Christians also believe that the Pope, who is elected by 72 Cardinals as the Head of the Catholic Church, must be suitable for that office and that he would not commit

any sin when he has passed the period of his life when he could fall victim to his own temptations or be deceived by the devil.

Those who made the laws of the Catholic church did not make any provision for the removal of the Pope. They considered it not only an insult to such an exalted office, but also illogical. They could not believe in the incompetency of a Pope, when he is elected by 72 very high officials of the church.

There is a provision in the constitution of the Catholic church that there should be no delay in electing new pope so that the candidates may have no time for canvassing and soliciting of votes.

When the cardinals meet to elect a new pope they take into account piety, knowledge and the services rendered by the candidate to the church. Moreover, for the high position of a pope a man must be a hard and serious worker. There have been cases when a cardinal had all the qualifications to be elected as a pope, but because of his poor health, he requested that he should be excused from assuming that lofty position.

The limited period when a number of popes belonged to the same family has passed. It has been noticed that an incompetent person has never assumed the office of papacy. It proves that the decision of the framers of the constitution of Catholic church that there should be no provision for the removal of a Pope was correct.

It has always been a virtue of the popes that they had no lust for money and no pope was ever interested in amassing wealth. They always tried to strengthen the financial base of the Catholic church. As a result of their efforts, it is today the richest organization in the world. If popes were allowed to marry like common people and had children, they might have thought of saving money to ensure a better future for their families.

It was the first time in the year 1368 A.D. that the law of impeachment was enacted in England. It was to impeach the minister, adviser and high officials of the rulers and not the rulers themselves. The framers of the act believed, or it appears that

they believed, that the Rulers could do no wrong so that they might be impeached. It was because of the wrong advice of the ministers or advisers that they sometimes did improper things. Therefore, the ministers, advisers and others who gave wrong advice should be impeached.

THE MIRACLES

Some people in the West may not believe in supernatural deeds, which cannot be explained by logic and reason, but just like the Shias, Christians also believe in miracles which are recorded in the biography of Christ.

Francis Gabriel, a professor at the University of Rome and author of the biography of Mohammed (SAW) has done some research in this field. He is a true Christian and believes that Christ raised Lazarus three days after his death.

In all ancient religions miracles have always been in the minds of the believers. They did not believe in any Prophet who could not perform miracles. They thought that performing miracles was an attribute of the Prophets.

Miracles which have played such an important part in all the religions, which appeared in Western Asia, are conspicuous by their absence in the religions of the East and South East Asia. We do not find any trace of them in the religions, which appeared in China, Japan and India. The followers of these religions did not expect or ask their prophets to perform miracles in order to believe in them.

Ernest Renan is the first European thinker, who has studied the subject and explained why there is no trace of miracles in the religions of the East and South East Asia, while they are so prominent in Western Asia. He believes that this is due to the different nature of the people of the two regions. In China, Japan and India the people were brought up to respect and listen to the words of their guardians and elders. Therefore, they believed in the words of their prophets also and did not ask them for any miracles. But the people of Western Asia were brought up in such an atmosphere, social and domestic, that they were not ready to accept what their prophets said. They wanted some signs as proof of their prophethood. That is why

the prophets were obliged to perform miracles.

The prophets of China, Japan and India attracted people to them through sermons and exhortations only, without performing miracles. Those sermons seem to be quite plain and simple today.

The contents of the Indian religious book, *Rig Veda*, are also quite ordinary and commonplace. What impresses us is their simplicity of expression. For example, the rising of the sun, running of water and the movement of the branches of trees in the air are described in such a simple way that they seem to have been taken from the books of children.

About 4,000 years ago the level of intelligence and understanding of Indian farmers was very low. The authors of *Rig Veda* realized that to create an impression upon their minds it should be written in a very simple form. The simpler it was the better effect it would have upon the listeners.

Max Muller of Germany, who translated *Rig Veda*, wrote that before the art of writing was invented the contents of the book, which total over 85,000 words, were learnt by heart and recited to others so that they might also commit them to memory.

Renan thinks that the people of China, Japan and India had logical minds and could find out the truth by logical means, but the people of Western Asia were quite different. They could not uncover the truth by using their brains. They believed only in the things which they could perceive through their senses. During the time of the three great prophets, Moses, Jesus and Mohammed, people were materialistic and could not understand anything which had no material existence. Among them, only the Arabs had a literature and were fond of poetry. They were intellectually superior to others, who had nothing to do but merely satisfy their physical needs.

To prove that the intellectual level of the Arabs was higher than that of others, Renan points out that there is discussion and appreciation of knowledge in the Quran, but

there is no mention of knowledge in any book of the Old Testament. When Hebrew scholars realised that the Old Testament was devoid of all intellectual values they wrote some books and attached them to it. However, they are not parts of the Pentateuch.

Since the Arabs were unable to perceive pleasure in any form other than physical enjoyment, the reward of the righteous, as mentioned in the Quran, is food, drink etc., etc.

Whenever any prophet came to the people of Palestine he had to show his supernatural power to prove to them that he was a Messenger of Allah. That is why Moses and Jesus had to perform miracles. On the other hand, the people of the desert, who had intellectual qualities, believed in Mohammed without asking him to perform miracles.

After his thorough discussion about the role of miracles in the religions of the West and East, Renan draws the conclusion that because of the low intellectual level of the people of Western Asia no religion would have made any progress without miracles.

For the same reason, people asked Jafar as-Sadiq to perform miracles and prove that he was an Imam. It is reported that he did perform many miracles. However, the Shias of today do not want to read about his miracles. They know that his knowledge was his greatest miracle and his piety the best proof of his Imamhood.

One reporter of traditions, Ibn Atiya, wrote that one day he was standing with Jafar as-Sadiq in front of as-Safa. Pointing towards the Kaaba someone, who was also standing there, said to him: "Is it true, as you have said, that the worth of a true believer is more than this sanctuary?"

Jafar as-Sadiq replied: "Yes, a momin or believer is important in the eyes of Allah. If he orders this mount to move, it would move from its place and go to him."

Ibn Atiya reports that as soon as he said those words, as-Safa moved from its place and went to Jafar as-Sadiq. Addressing

the mount he said: "I did not ask you to come to me." Immediately it went back to its place and stood still."

Jafar as-Sadiq did not depend upon miracles and religious tenets for making Muslims believe in their Creator. He was the first Muslim scholar who tried to make them believe in Allah by means of logic and reason. He tried to educate them and increase their knowledge about the world they lived in so that by knowing and studying strange and wonderful things they might be convinced that it is Allah who has created this world and it is He who controls it and manages its affairs.

UNIVERSAL BELIEF IN ALLAH

Jafar as-Sadiq (A.S) has said that everyone believes in and worships Allah, whom he creates by his own imagination. The god of an ignorant person with little knowledge is an ignorant god with limited intelligence and little knowledge. But when his knowledge increases and his mind expands he believes in and worships a greater God.

He also said that those who do not believe in God are ignorant persons and those who doubt His existence are also the same. It's impossible for a learned person not to believe in God. When a person's knowledge increases his belief in God also increases.

It was his conviction that not only human beings, but everything in the world knows and worships his Creator. Just as the knowledge about God differs from person to person, so it also differs from creation to creation. Each creation knows its God according to its own intelligence.

According to the above theory the animals in the forest, the birds in the air, the fish in the water and even the plants and pebbles know and worship their creator. This is not acceptable to us. If animals, plants, stones and all animate and inanimate objects know and worship God, their belief in Him would not, necessarily, be the same as that of the followers of unitarian religions. For example, the god of the birds would be unlimited space of air and the god of atoms, which are in perpetual motion, would be complete rest.

Jafar as-Sadiq has said that all learned persons believe in God whether they call him God or by some other name. Even those who deny the existence of God believe in something which becomes their god although they may not realize it.

Primitive people who walked on their hands and feet

and were terrified by peals of thunder and hid in their caves had belief in God. That is why they worshipped stones and stars. Modern men, who fly to the moon, also believe in God.

Nowhere in the world is God believed to be in a material form. It is possible that some people might have taken advantage of material things in their worship of God, but the real object of their worship was God and not that material object.

The concept of God has varied from person to person and from place to place and the name of God has changed from people to people and from time to time. The name which has been given to God in the modern age is Graviton.

Graviton is the hypothetical particle with a zero charge of the gravitational field. The devotees of the new religion which is known as Gravity, contend that the creator, controller and the guardian of the universe is Graviton.

In support of their theory the believers in this new religion say that there is nothing stronger and faster than Graviton. In one second it can go from one end of the Universe to the other. According to Einstein this is a distance of three thousand million light years. (According to modern knowledge it is much more than that.)

In the time of Jafar as-Sadiq atheists did not believe in the God of the Muslims, since they did not believe in the principles of Islam. They believed that the creator and controller of the universe was Dahar (Time). Today, followers of the religion of Gravity do not believe in the god of the Christians since they do not believe in the Trinity.

Nevertheless, those who believed in Dahar also believed in a creator or God as did the believers in Gravity. The followers of Gravity, however, have better knowledge of their God, Graviton, than the atheists had about their God, Dahar. They know that their God, the Graviton, is the strongest and fastest force, at least, in this solar system. (It has not been established as yet by experiments whether Graviton works in the same way

outside our solar system or not.)

The devotees of Graviton say that nothing can stop their God, the Graviton. It runs through the heart of the sun, where the temperature is more than twenty million degrees centigrade, as it speeds through vast spaces between the stars, where cold reigns supreme and the temperature plunges to absolute zero. The flow of electricity can be stopped by a non-conductor, but nothing can stop the passage of gravity. It passes through a wall of glass or china just as it goes thorough a wall of steel. Graviton is present in every drop of our blood just as it is present in the heart of the sun and the planets. Most probably it is present in other solar systems and galaxies as well. Because of its speed it is present everywhere at all times in the universe. Everything, at least in our solar system, survives because of its power and protection.

There can be no calamity greater than the interruption in the flow of Graviton even for a second. The molecules of matter will fall apart and atoms within the molecules will disintegrate as their electrons will separate from the nuclei. As a result, not only matter will perish but energy will also be destroyed.

The believers in gravity know that matter and energy cannot exist without the power of Graviton, but they have no knowledge about Graviton itself. To discover how matter and energy came into being one must find out what Graviton is and how it came into being. If this problem is solved the secret of matter and energy, which were known in ancient times as the body and soul, will be unravelled.

In the absence of any knowledge about the laws of physics operating in other places, we cannot say with certainty that Graviton is the strongest force in the universe and the only source of all other powers. In our solar system, however, its superiority over other powers and forces has been established. Therefore, the followers of the religion of gravity know their god better than those who believed that Dahar was their God. Today, the devotees of Dahar have become the votaries of

Graviton. It proves that they were wrong when they believed that Dahar was the creator of the universe and was their god.

If we discover the laws of physics of other solar systems we may find that the power of gravitation is a secondary power and the primary power is something else. At that time the followers of the religion of Gravity will realise that they were also wrong and that the God who is the Creator of the Universe is not Graviton.

The above discussion shows that a man's knowledge helps him in discovering his God. Someone who is a genius obtains this knowledge himself, but common people learn it from others. Jafar as-Sadiq (A.S.) was a genius. He was a discoverer and producer of knowledge.

DISCOVERY OF HYDROGEN

Jafar as-Sadiq (A.S.) devoted his whole life to knowledge and education. He did not charge his students any fee. On the contrary he gave financial help to the poor students so discreetly that others did not know about it. He used to purchase books from his own pocket for those who could not afford to buy them. If there was only one book and all the students had to read it, he hired the services of transcribers, who made a number of copies of the book, which were distributed among the students.

In his academy many new subjects were taught which had never been taught before. Since the books on those subjects were not available in Arabic, it became necessary to translate them into Arabic so that all students could benefit from them. Most probably it was his idea which was borrowed by some Abbasid caliphs of Baghdad who started patronising the translation of books from foreign languages into Arabic.

For teaching physics, chemistry and other science subjects there was a laboratory attached to his institute. It was a very small laboratory, but it was sufficient for the needs of his students. This proves that the great scholar did not depend upon theory only, but tested them through experiments. In this small laboratory some very great discoveries were made. It seems impossible that he could have discovered the presence of oxygen in the air without conducting experiments.

It was not a miracle of Jafar as-Sadiq that he moved the mountain which no logical mind would believe, but his greatest miracle was that twelve and a half centuries ago he discovered the presence of oxygen in the air.

His father, Mohammed al-Baqar, who was also a great scholar, had discovered the presence of hydrogen in water. He had also found out that it was a highly inflammable gas. That is why he said that water can be turned into fire. Jafar as-Sadiq

must have known about the presence of hydrogen in water through his father, but he himself discovered the presence of oxygen in the air.

We do not know if Jafar as-Sadiq was able to obtain pure oxygen and hydrogen or not. The discovery of these two gases depended upon their separation from air and water. Separation of hydrogen from water was more difficult than separation of oxygen from air. Pure oxygen is available in the air, but pure hydrogen is not available anywhere. That is why hydrogen could not be obtained till sufficient power was developed and water was hydrolysed.

We are surprised how Jafar as-Sadiq and his father were able to discover hydrogen, which is a colourless, odourless and tasteless gas and does not exist freely in nature. They could not have identified this gas and found out its properties without separating it from water through the process of hydrolysis, which was impossible without a strong current of electricity.

The first person who was able to separate hydrogen from water in modern times was the English scientist Henry Cavendish, who died in 1810 at the age of 81. After working hard for many years he was able to hydrolyse water and obtain hydrogen gas. On May 27, 1766, he placed a burning stick near a container full of hydrogen gas. Instantly it caught fire. The container exploded and fire spread everywhere. If members of his household had not rushed to his rescue, the whole house and its contents would have been burnt. He escaped with some injuries to his hands and his face. Through that bitter experience, Cavendish learnt that hydrogen gas is highly inflammable.

It was a general belief that water was nothing but liquid air because it evaporated in heat and became part of the air. Then it came down again in the form of rain.

Cavendish, through his experiments, proved that it was not liquid air, although he himself called hydrogen gas "Inflammable air." It was Lavoisier, the French chemist, who gave the name of hydrogen to this gas.

In the time of Jafar as-Sadiq (A.S.) electricity was not available. Had he and his father employed some other means, which modern scientists do not know, for separating hydrogen gas from water without the use of electricity? This great discovery was not possible through philosophical speculations and guess work.

The pollution of air arising from excessive use of fossil fuel for producing energy has caused Americans to consider using hydrogen gas as an alternative source of energy. But the problem of separating it from water without the use of an electric current has not been solved yet.

Many scientific discoveries were made in the past but were not written down. As a result, they were lost for ever. Some scholars kept the knowledge of their discoveries to themselves. They were afraid that if they shared them with others they might fall into the hands of undesirable persons and pose a threat to the general public.

In the *Book of the Dead*, which was written in Egypt and is the oldest book in the hands of mankind, it is recommended that knowledge should not be taught to unsuitable persons, as it would be harmful to the interest of gods and the people. Confucius, the great philosopher of China, who died in 476 B.C. writes that some scientific secrets should not be taught to those who might use them against the interests of other people, otherwise scientific knowledge would become a source of misfortune for mankind.

Sufis and gnostics do not teach every student the things which they consider to be their secrets although they have nothing which may prove to be dangerous to the public interest. They teach their secrets only to those students who have completed the seven stages of Suluk (seven grades of gnosticism) and are considered by the Qutub (their spiritual leader) to be dependable and reliable.

Muslims in general and Shias in particular believe that there were many secrets which the Prophet of Islam (SAA) and their twelve Imams knew, but they did not reveal them to their

followers lest they fell into the hands of persons who might endanger the lives of other people, destroy social order and create a state of anarchy.

We must accept that Jafar as-Sadiq did the right thing by not revealing his secret formula, if he had any, for separating hydrogen from water without the use of electricity. We have seen that the separation of hydrogen from water has not done any good to mankind. On the contrary, it has led to the production of the hydrogen bomb, which is threatening to annihilate the human race. It was better that this instrument of death, destruction and devastation was not invented and manufactured at all so that mankind would be saved from the impending catastrophe.

THEORY OF LIGHT

The greatest achievement of Jafar as-Sadiq was his Theory of Light. He said that light reflected by different objects comes to us, but only a part of the rays enter our eyes. That is why we do not see distant objects clearly. If all the rays of light which come from them entered our eyes, objects would appear near to us. If we make a device through which all the rays of light coming from the camels grazing at a distance of 3,000 zirah (one zirah is equal to 40 inches) entered our eyes we would see them grazing at a distance of only 60 zirah and all other objects would look 50 times nearer to us.

That theory spread far and wide through his students. During and after the Crusades, when there were more and more contacts between the East and West, the theory reached Europe and was taught in all the schools and colleges there. One of the teachers, who knew this theory, was Roger Bacon of England, a professor at Oxford University. His theory of light is exactly the same as that of Jafar as-Sadiq. He said that if we make something by the help of which all the rays of light coming to us from a distant object entered our eyes we shall see it fifty times nearer to us.

It was this theory, which helped Lippershey of Flanders to make his first field glasses or binoculars in 1608. Galileo made use of these binoculars and invented his telescope. He first used his telescope on the 7th of January, 1610. When he directed his telescope towards the moon, he was surprised to see that it has mountains, plains and valleys just as we have on the surface of the earth. It was at that time that he realized that the earth was not the only world. The moon was also a world.

The period between the invention of the binoculars and the telescope was less than two years. Most probably the idea of making the binoculars and telescope entered the minds of

Lippershey and Galileo at the same time, but it cannot be denied that Galileo learnt a lot from the invention of Lippershey. He examined the binoculars, removed the defects which could possibly be removed at that time and made his telescope.

Galileo had studied in the University of Padua, Italy. After he completed his education he was appointed professor of mathematics in the same university.

If Jafar as-Sadiq (A.S.) had not formulated his theory of light binoculars and telescopes would not have been invented and made and Galileo could not have confirmed through visual observation the theories of Copernicus and Kepler that all planets including the earth rotate around the sun.

The invention of the telescope created so much excitement among the people of Italy that the President of the Republic and the senators became interested to see the solar system through it. Galileo took his telescope from the University of Padua to Venice and installed it on the steeple of a church. Aged senators, assisted by others, climbed the tower to observe the planets and stars.

When Galileo was asked why his telescope made heavenly bodies look so near that they could see the mountains of the moon, he repeated the words of Jafar as-Sadiq and said: "This telescope collects all the rays of light coming from the heavenly bodies. When all the rays are concentrated, the objects which are at a distance of 3,000 feet away appear to us as if they were at a distance of only 60 feet."

In the time of Jafar as-Sadiq, industry had made no progress to enable him to make a telescope and observe heavenly bodies himself. Nevertheless it does not, in any way, reduce the importance of his theory. Could Newton, who discovered the laws of gravitation, send the apple which had fallen on the ground back to the sky and make it go round the earth?

The satellites which go to the moon, Venus and Mercury obey the laws of gravitation discovered by Newton, but he

himself could not send any satellite to the planets.

Before the time of Jafar as-Sadiq it was believed that light from our eyes falls upon different objects so that they could be seen. He was the first scholar who rejected that idea and said: "The rays of light from different objects come to our eyes and enable us to see them. The rays of light from our eyes do not go out and fall on other objects, otherwise we could have seen them in the darkness also. We see only those objects which are luminous. If they are not luminous themselves, they must reflect the light falling upon them from some luminous object."

He also put forward a very interesting theory about the speed of light. He has said that light is a kind of motion which is very fast. Since no technical aids were available he could not measure the speed of light, but what he said is quite in harmony with the modern theory of light.

It is reported that once during the course of his lectures he said that a powerful beam of light could move heavy objects. The light which Moses saw at Mount Sinai was of that kind. It could have moved the mountain if God had so desired. It can be said that by making the above statement he laid the foundation of the theory of the laser.

The theory that a strong beam of light can move heavy objects was also mentioned in the past but the following theories are his own:

- (a) Rays of light are reflected by different objects and enter our eyes.
- (b) We do not see distant objects clearly because the rays of light coming towards us are scattered.
- (c) If the rays of light are concentrated by some device we can see distant objects distinctly.
- (d) Light is a kind of motion which travels at a very high speed.
- (e) A strong beam of light can move heavy objects.

From time immemorial it was supposed that light could move heavy objects. In ancient Egypt it was believed that a very strong beam of light could pass through a mountain and even move it from its place. This view was shared by the followers of other ancient religions as well, but they did not explain how light could do that. Since sorcery and magic were parts of ancient religions they might have thought that light could do that by magic.

What Jafar as-Sadiq did not say about light is that it is a kind of energy otherwise there is no difference between his theory and the modern theory of light. He was definitely a leader and a pioneer in this field as well. He has said that light travels very fast. The speed of light has been measured to be 300,000 kilometres per second. It was a very fast speed by old standards, but is not considered as such today. A distance of 300,000 kilometres is a very short distance as compared to the astronomical distances between stars and galaxies.

TIME AND SPACE

Time, Jafar as-Sadiq (A.S.) has said, is the distance between two known events. It has no independent existence. It is only we, who feel that it exists.

Time is a very old subject, which was discussed by Greek philosophers and is still being discussed today. Greek philosophers, who believed in the physical existence of time have said that it is composed of very small particles. Those particles were so small that they could not be seen or touched. They were always on the move. They came from one side and went to the other. No one could feel their movement, but the changes made by their movement were noticeable in all the plants and animals.

They said that time was of two kinds. There was one type in which particles moved and passed away, making changes in plants, animals and humans. There was another kind of time whose particles did not move. They were just like the particles of sand and dust, which had settled down at the bottom of a pit and remained motionless. That motionless and stationary time was known as eternity.

In their opinion mobile time was for all creations and motionless time was for the gods. Since gods were subject to motionless time there was no change in them at all and they always remained in the same condition. Since human beings were subject to mobile time they were always in a state of change and would remain so till they joined the ranks of gods and came under motionless time.

Greek philosophers, who were known as gnostics, believed that even plants and animals could come under motionless time and become gods.

Zeno, the famous Greek philosopher, whose followers

were known as Stoics (because they were taught by him in Stoa Poikile, meaning painted portico) said that if someone wanted to come under motionless time and join the ranks of gods he should suppress his passions and feelings and remain cool, calm and collected under all circumstances.

He said that in a democratic country the people cannot have full freedom simply by passing laws. It can be achieved only after they fight big battles with themselves, conquer and kill their passions and crush their desires which tempt them to trample upon the rights of others.

Another Greek philosopher by the name of Epicure, who was born about one hundred and fifty years after Zeno has said that it is possible to come within immobile and motionless time and join the ranks of gods by having all the pleasures and enjoyments of life, but within certain limits.

The Greek philosopher, Diogenes, who was contemporary to Epicure, was of the opinion that if someone desired to enter into motionless time, he should give up every comfort and luxury of life and live in a tub. He should have no worldly possessions at all. He should throw away everything including his wooden bowl and drink water by his hands like children.

One point which attracts our attention is that there is no difference between the gnosticism of Greece and that of eastern countries. In both the places self denial and suppression of one's desires are the only way to join the ranks of gods.

How strange it is that similar philosophies appeared in two different and distant places. There were no cultural contacts between them before Achaemenians came to power in Iran. Therefore, it cannot be said that Greeks borrowed those ideas from the East or the East took inspiration from the Greeks.

Confucius of China, Buddha of India and Zoroaster of Persia did not say that one should kill his inner self if he wanted to join the ranks of gods. It may be said that such ideas originated in the minds of those, who were weak and had no worldly power. But we find among the gnostics some very

strong and powerful persons, who could have done what they wanted. They also subscribed to the idea that one should mortify his passions and desires in order to join the ranks of gods.

Greek philosophers, who did not believe in the physical existence of time, have said that it is the distance between two given movements. This distance would appear as time only to an intelligent and sensible being. Animals do not feel the presence of time. It has, therefore, no physical existence.

Some Greek philosophers contradicted that idea and said that animals had sense of time, otherwise they would not be punctual. Their punctuality might be due to hunger, thirst, dawning of the day or setting of the sun.

In later periods also many philosophers refused to believe in the physical existence of time, but they did believe in the existence of space.

Many scholars of the 19th century did not believe in the physical existence of space. They held the view that space depended upon the presence of matter. If there was matter, there was space, otherwise not. What we see as space is matter itself. The above view is shared by some modern scholars also. They say that it seems to us that aeroplanes fly from one place to another, while actually they fly through matter itself.

It is hard to believe that rockets which go to different planets fly in matter. There are no air particles two to three thousand kilometres above the surface of the earth which means there is no matter. It is empty space, which has nothing but electromagnetic waves, light waves and the waves of gravitation.

The scholars who deny the existence of space, contend that the distance between the sun and its satellites is just like the distance between the nucleus of an atom and its electrons. Since the vast empty space inside an atom is matter, the space between the sun and its satellites is also matter. A very strong proof that this space is matter is that it is filled with the waves

of gravitation, which are nothing but a kind of matter.

In the 18th century it was discovered that matter and energy are two manifestations of one and the same thing. If there is any difference it is in their properties only. In the beginning of the 20th century some scholars defined matter as a kind of condensed energy and energy as a kind of flowing matter.

The philosophers who believed that space has no independent existence say that the universe is not like a cinema hall which has a limited number of seats. If all seats are occupied there is no room for newcomers. In the universe there are millions of galaxies which have created their own space. If another million galaxies are born today they would create space for themselves. If there is more matter there is more space.

When space travel became a reality, physicists were able to get more information about matter. It was first believed that only hot objects radiated infrared rays, but the satellites which rotated round the earth proved that radiation comes from the north and south poles as well.

It is now conclusively proved that everything radiates infrared rays except those objects whose temperature is absolute zero (-273.15°C or -459.67°F). At this temperature molecules of matter come to a standstill. Scientists have not been able to create absolute zero temperature and study matter when the movement of its molecules is suspended.

Since every animate and inanimate object emits infrared rays it has become quite impossible to hide the movement and deployment of armies from the enemy. Every object, big or small, can be seen, even in the darkness of night, by the help of field glasses, fitted with lenses, sensitive to infrared rays.

Issac Ossinoff, the Russian scientist, who emigrated to the United States, has propounded a new theory about space. He says that space is nothing but matter and its waves.

According to this theory, matter is a collection of nuclei of atoms that emits rays. These rays are most dense near the

nuclei and become less dense away from it but their speed remains the same.

The nucleus of an atom can be compared to a lamp, which has a bright light. The further away we move from the lamp, the dimmer the light becomes till it totally disappears from our sight. The light waves, however, are still there and are travelling at a speed of 300,000 kilometres per second. They will continue their journey in a straight line till they come near the sun.

The gravitational pull of the sun would bend them, but because of their high speed they pass by the sun and cross our solar system. They pass by many other suns as well. Their journey ends only when they come within the gravitational field of a black hole which would swallow them up.

Black holes are stars which have collapsed and lost their electrons. Their field of gravitation is so intense and strong that even light waves cannot escape from them. That is why they are called black holes.

According to the theory of Dr. Ossinoff light waves create space. They themselves are space. If they stop flowing, the space would disappear from our sight. Light waves never stop flowing. Even in the darkness of night we are immersed in a flood of different kinds of waves, including light waves, which we do not see. Some of the waves even pass through our bodies, e.g. the waves of gravitation.

Scientists do not know how energy can be converted into matter. This is a secret of creation, which has not been unravelled as yet. Conversion of matter into energy is a common place thing. We convert matter into energy every day in factories, aeroplanes, boats and cars.

It is not known how our sun, which is one of the great wonders of creation, came into being but we know that it does not convert energy into matter. In our sun hydrogen, which is a kind of matter, is converted into helium, which is another kind of matter. In this way a tremendous amount of energy is

produced.

When we see that matter is converted into energy we think that energy can also be converted into matter. However, this is only an hypothesis. We are not sure that it happens in nature or it can be done by us.

We must pay homage to Jafar as-Sadiq, peace be upon him, who said 1,200 years ago that space has no physical and independent existence and is also subject to change. To a little boy the courtyard of his small house would seem quite big. However, if he leaves the house and comes back after an absence of 20 years, the same courtyard would look very small. He would wonder why the courtyard, which was so big has become so small.

How wonderful it is that his theories of time and space correspond exactly to the modern theories of physics, although they have not been expressed in the scientific terminology of today.

TRANSFER OF DISEASE BY RAYS

Jafar as-Sadiq has said that patients suffering from certain diseases emit special types of rays. If these rays fall upon a healthy person, they are apt to make him sick.

The above theory was not acceptable to physicians and biologists. They were of the opinion that microbes and viruses were the main cause of many diseases, which were spread by insects, air, water, food and direct and indirect contact with patients.

Before it was discovered that many diseases are caused by microbes and viruses and spread by insects, water, food etc. it was believed that diseases were spread by means of smell, which comes out of the sick persons and steps were taken to prevent the spread of diseases through smell.

No one before Jafar as-Sadiq, peace be on him, had ever said that diseases were also transferred from one person to the other by means of rays, emitted from patients suffering from certain diseases. This idea was rather ridiculed by the learned people till it was proved to be correct by scientific studies.

In Novosibirsk, Russia, which is a centre of research for medicine, chemistry and biology, numerous experiments were made and it was established that:

- (a) The cells of a sick person emit many kinds of rays.
- (b) If a healthy person is exposed to the rays which come out of patients suffering from certain diseases, he may contract the disease, even if there has been no physical contact between the two.

Russian scientists took cells from different organs of a healthy person and divided them into two parts. They put one part of the cells in a jar of quartz, which shielded them from all

kinds of rays, except ultraviolet rays, and the other part in a jar of glass which ultraviolet rays cannot penetrate. These jars were put near another jar, which contained sick cells. After a few hours it was noticed that the healthy cells, which were in the jar of quartz, had also become sick, but the cells which were in the glass jar were not affected at all.

Five thousand experiments were made during a period of 20 years and each time the result was the same. Healthy cells were infected by the emission of ultraviolet rays from the sick cells and the sickness was, in all cases, the same as what the sick cells were suffering from. For instance, if the sick cells had toxæmia, the rays coming from them transferred toxæmia to healthy cells.

During experiments it was also observed that when sick cells were treated with antibiotic medicines the intensity of ultraviolet rays, emitted from those cells, was greatly reduced and they had no adverse effect on healthy cells placed near them.

The above experiments conclusively prove that cells of living beings are transmitters and receivers of ultraviolet rays and that certain diseases are spread by radiation from sick cells as Jafar as-Sadiq (A.S.) had said.

Those experiments proved to be very useful. The scientists and biologists learnt that if ultraviolet rays emitted by the cells of a sick person, are not allowed to fall on healthy persons, the spread of certain kinds of diseases can be controlled.

Russian scientists are collecting data of different kinds of rays emitted from persons suffering from various diseases and the intensity of photons of ultraviolet rays emitted by them. They say that it would help them in treating patients and controlling the spread of diseases. However, they do not say how it would help them in the treatment of patients.

Some experiments in this field were made in America also with the same results. The American scholar, who has done research work on the subject and published results of his

experiments in the form of a book, is Dr. Johan Oats.

The ill effects of ultraviolet rays on living tissues are well known. Ultraviolet rays, which radiate from the sun, would destroy all living creatures on the surface of the earth, if they are not protected by a thick layer of air.

An Egyptian papyrus, which was written before 1500 B.C., shows that passengers of a boat from Mediterranean were not allowed to land in Egypt so that they might not spread disease in the country. This shows that there was regular traffic between countries of the Mediterranean and the Red Sea and that it was known at that time that certain diseases were transferred from one person to another.

Our knowledge about living cells and viruses is very scanty. We know only that viruses are extremely small beings and that they enter our cells. We also know that some medicines help us in our fight against viruses. However, we do not know how they enter the living cells. We also do not know why our cells become weak and old. If we know we will fight against old age and remain young.

Russian and American scientists have discovered that sickness is transferred from sick cells to healthy cells by means of ultraviolet rays, but they still do not know how. So long as this remains a mystery, it cannot be said with certainty that the sudden outbreak of disease in some areas was due to radiation of ultraviolet rays.

MATTER AND ANTI-MATTER

One of the theories of Jafar as-Sadiq (A.S) is that everything, except Allah, has its opposite, but this does not result in a conflict, otherwise the whole universe would be destroyed.

This is the theory of matter and anti-matter, which has been discussed briefly before and will be discussed in some detail in this chapter.

The difference between matter and anti-matter is that in matter the electrons are negatively charged and protons are positively charged. But in anti-matter the electrons are positively charged and protons are negatively charged.

Scientists are of the opinion that if one kilogram of matter collides with one kilogram of anti-matter so much energy will be released that the whole world will be destroyed. But no one has so far made an experiment to find out what would actually happen if matter collides with anti-matter.

Before Americans exploded the first atomic bomb in 1944 it was believed that if an atomic bomb is exploded it would create such a chain reaction that all atoms of the world would disintegrate and it would be destroyed, but nothing happened and the pundits, who had made that prediction were proved wrong.

Scientists, however, argue that there is a difference between the explosion of an atomic bomb and one due to the collision of matter and anti-matter. When an atomic bomb or a hydrogen bomb explodes, part of matter is converted into energy. Only nineteen parts per thousand of matter of the atomic bomb, dropped on Hiroshima was converted into energy and the rest had gone to waste.

The countries which have exploded hydrogen bombs

have kept details of their experiments as military secrets. We, therefore, do not know how much matter of a hydrogen bomb is converted into energy, but it can be said with certainty that no one has so far been able to convert 100% of matter of any kind of bomb into energy.

Professor Hannes Olof Costa, an eminent astrophysicist from Sweden, does not think that explosion of matter and anti-matter can destroy the world. In his opinion our future source of energy is not atomic power, nor is it hydrogen from rivers and oceans, but it lies in the explosion of matter and anti-matter. He says that 50 kilograms of matter and an equal amount of anti-matter are quite sufficient to supply the energy needs of the entire world for one year. He calls this kind of energy Matergy.

Professor Alfven thinks that if half a kilogram of matter is exploded with half a kilogram of anti-matter it would create one hundred billion degrees centigrade of heat, which is much more than the heat in the heart of the sun. It is estimated by astrophysicists that the heat in the centre of the sun is about 10 million degrees centigrade.

The question arises as to how human beings can harness such tremendous amount of heat and use it for their needs. Professor Alfven does not consider it a big problem. He says that the production of heat can be controlled and reduced to a manageable level by having an imperfect explosion just like an atomic explosion in which only a part of the matter is converted into energy.

According to Professor Alfven exploding matter with anti-matter and producing energy is not a scientific problem, but it is an economic problem. A sum of ten to fifteen billion dollars is required to conduct experiments and explode matter with anti-matter. No country in the world is ready to spend so much money on such experiments.

Just as uranium was used for exploding an atomic bomb, helium would be used for exploding matter with anti-matter. Russian scientists have already obtained anti-matter of helium.

Note: In the September 1973 issue of "Life and Knowledge Magazine", which is published in Paris, an article has appeared under the heading: "The World of Anti Matter". In this article the writer has predicted the production of light by combining one atom of matter with one atom of anti-matter.

LIGHT OF THE STARS

Jafar as-Sadiq (A.S.) has said that among the clusters of stars, which we see at night, some are so bright that our sun, in comparison, is quite insignificant.

Because of man's limited knowledge about stars, many people during his time and centuries after him, considered this theory to be illogical, irrational and unacceptable. They could not believe that these small specks of light, which are called stars, can have more light than the light of our big bright sun.

About twelve and a half centuries after the death of that great man it was proved that what he had said was quite correct. It has been discovered that there are stars in the universe, which are billions of times brighter than the sun. They are called quasars. The light of quasars is about quadrillion times (ten thousand billion times) the light of our sun. Some of them are at a distance of about nine thousand million light years from the earth.

The first quasar was discovered in the year 1927. About 200 quasars have been discovered so far. Astronomers need very powerful telescopes to study these wonderful stars. The world's largest telescopes are not considered powerful enough for studying quasars.

Astronomers of the 19th and 20th centuries were not surprised when they discovered giant stars, but when they observed quasars with their telescopes they held their heads with their hands lest they might lose their senses and go crazy.

The discovery of quasars disproved the theory of Einstein that the diameter of the universe is about three billion light years.

The distance of *nine* billion light years is a very great distance and makes one stagger to imagine the vastness of the

universe. Light covers a distance of 9,800 billion kilometres per year. We have to multiply this figure with nine billion to find out the distance between the earth and quasars.

What has confused and puzzled scientists is the light of quasars. They fail to understand the cause of the power or energy within them which produces such an intense and bright light.

Professor Alfven is of the opinion that there is no other source in the universe, which can generate so much energy in quasars, except explosion of matter and anti-matter.

If the Russian scientists make an experiment and explode helium with anti-helium, mankind would not only have an inexhaustible source of energy, it would most probably solve the mystery of how so much light is produced in quasars.

MULTITUDINOUS WORLDS

Another important theory of Jafar as-Sadiq (A.S.) is that there are so many worlds that we cannot count them. Their number is only in the knowledge of Allah (SWT).

He has classified them into big worlds and small worlds. He has said that the difference between them lies in their size only. Whatever is in big worlds is also in small worlds, but on a smaller scale. And whatever is in small worlds is also in big worlds, but on a larger scale. If we had the power, we could make small worlds big and big worlds small.

These ideas are confirmed by the science of physics. If vast distances between the nuclei and electrons of atoms are removed the earth would shrink to the size of a football, but its weight would remain the same. It would not be out of place to mention that all celestial bodies, including our earth, which rotate round the sun, have no weight in space.

Radio telescopes not only scan the waves of light, which come from distant stars, they also search vast and limitless space for the presence of molecules. About thirty kinds of molecules have been discovered so far. Some of them are the building blocks of amino acids and proteins, which are principal components of cells of all living organisms. The presence of these molecules in outer space is a sure sign that life on this planet is not an exception, but it is widely spread throughout the universe.

It can be said with confidence that basic elements of life have always been coming to the earth from outer space. They were destroyed when the earth was hot and molten, but after it cooled down gradually and conditions became favourable, these molecules produced amino acids, protein, etc. which created the cells of living organisms including human beings.

Just as we have living beings on this planet, there must

be living beings on many other planets in the universe where conditions are suitable. It is also possible that inhabitants of some of the planets might have been there for millions of years before we came into being and have solved all the problems which confront us today.

We hope that some day we will be able to establish contact with the intelligent and sociable beings of other worlds through radio telescopes and make use of their knowledge and experience.

Archimedes, the Greek geometrician and philosopher, who lived three thousand years before Christ, considered an atom to be indivisible. He said that if someone wanted to find out the number of atoms in the universe he should multiply 63 times 10 by 10. Today we find that the number of suns in the universe is more than the number of atoms, as he had calculated.

Eddington (Sir Arthur Stanley), the English physicist, who died in 1944, has said that if we want to find out the number of atoms in the universe we should multiply 83 times 10 by 10. When he had calculated the number of atoms in the Universe by his mathematical formula, radio telescopes were not invented and the great telescope of Mount Palomar Observatory in the United States, which enables astronomers to probe the universe up to a distance of two thousand million light years, had not yet been constructed. It was the belief of astronomers at that time that there were only one million galaxies in the universe.

In the eyes of Eddington and other scientists of the 19th century the universe was very small. The universe of their imagination, as compared to the real universe, was just like a cup of water before a boundless and fathomless ocean. If Eddington was alive today and had seen quasars through radio telescopes he would have definitely changed his views.

After the discovery of quasars, astronomers have come to the conclusion that one hundred million galaxies and billions of stars in each galaxy, which we see through our telescopes, are not within the boundaries of the real universe. They are only a few celestial objects scattered in the outskirts. The real

universe begins from quasars, which are at a distance of about nine billion light years from us. They argue that if the boundaries of the real universe had not begun from there, quasars would not have ten thousand billion times the light of our sun. Our sun is nothing compared to quasars. It converts only four hundred billion tons of hydrogen into helium every 24 hours. It would continue to do so and give light and heat to us and to other planets for another ten billion years. But in 24 hours a quasar converts ten thousand billion times the amount of hydrogen converted by our sun.

Our telescopes are not powerful enough to enable us to see what is beyond quasars. Therefore, we do not know how vast the universe is. It can only be surmised that in the universe there would be millions of millions of worlds, which have existed for billions of years and shall continue to do so for billions of years to come.

We must, therefore, accept, as Jafar as-Sadiq (A.S.) has said, that no one, except Allah (SWT), knows the number of large and small worlds. In other words we, the humans, do not know them and cannot count them.

EXPANDING AND CONTRACTING UNIVERSE

A very interesting theory of Jafar as-Sadiq (A.S.) is that the universe is not always in one and the same condition. In one period it expands and in another it contracts.

The phenomenon was considered for centuries as inconceivable and the theory remained quite incomprehensible to the leading astronomers.

After the 18th century more and more powerful telescopes were built and astronomers could see beyond our solar system. They could also discover the components of stars by studying spectrums of their light.

It was in the beginning of the 20th century that Abbe Lemaitre, who was a priest and at the same time a professor at the University of Belgium, noticed that many galaxies, which are close to our solar system and could be observed clearly, are gradually receding and scattering in different directions.

He communicated his observations to other astronomers, who were working in different observatories in the world and asked them to check whether he was correct or not. Confirmation was received from many observatories of Europe and America that Lemaitre was correct and that many galaxies, which are close to our solar system, are moving away from our galaxy and the distances between them are gradually increasing.

When World War II broke out, all connections between astronomers who were interested in the study of this strange phenomenon were severed. With the deaths of Lemaitre and Eddington, the English physicist, further research in this field was suspended.

At the end of 1960 research work on the subject

resumed. It was observed and confirmed by all astronomers that distances between our galaxy and the neighbouring galaxies are increasing. We cannot check and confirm whether it is happening to other galaxies as well. They are so far from us that we cannot observe them clearly through our present telescopes. However, these observations have provided sufficient proof that the universe is in a state of expansion.

Hundreds of years after the death of Jafar as-Sadiq (A.S.) a part of his theory that the universe sometimes expands was definitely proved to be correct. We do not know when this expansion started. It must have begun thousands of years before he was born. The universe was actually in a state of expansion when he said that it sometimes expands and sometimes contracts.

The discovery of black holes has proved his other statement that the universe sometimes contracts. No one can imagine how much time these stars must have taken to condense and contract. It is real death of matter when it has no movement at all. Is it the fate and destiny of matter that it may finally die and become a black hole with such a deadly pulling force that even light waves cannot escape its death trap?

Just as expansion of the universe is gradual, the contraction is also gradual. These stars have not collapsed and lost their identity overnight. Stars lost electrons and their nuclei adhered together over millions of years.

In the 19th century when European scholars translated religious and philosophical books of ancient India into European languages, they learnt that one of the beliefs of Indians was that the world has a period of wakefulness, movement and expansion and a period of sleep, rest and contraction. During the period of wakefulness the world expands so much that no one can imagine where it begins and where it ends. In this period plants grow all over the earth and the number of animals increases. This period lasts for thousands of years.

Every time the world wakes up and starts moving and expanding it produces better and better plants, animals and

human beings. The dirty, the deceased and the decadent are discarded and destroyed and they never wake up and return.

At the end of that period the earth starts shrinking and receding to its centre. Animals and plants start dying and disappearing till there is no trace of them at all. This is the period of sleep, rest and contraction. No one knows how long it lasts.

However, the soul of man does not die during the period of sleep and rest. It continues to improve and proceed from one state to another. Each time the earth wakes up, better and better human beings are born till they become perfect, go to paradise and attain eternal bliss.

The statement of Jafar as-Sadiq (A.S.) and what is written in Hindu scriptures were theories only, but modern scientific research has proved that they are laws of nature. If the whole universe does not expand and contract at least a part of it does.

POLLUTION OF ENVIRONMENT

Jafar as-Sadiq (A.S.) has said that we should not pollute our environment otherwise it would become impossible to live on this planet.

Definitely he had our times in mind when he made those remarks. Pollution was not a problem in his time. There was not a single factory in existence and metals were smelted in small furnaces by burning wood.

It was during the 18th century that England, France and Germany started producing iron and steel in large quantities and chimneys of factory furnaces began spewing smoke twenty four hours a day.

The environment is so polluted in Europe and North America due to industrial expansion that marine life in the river Rhine of Western Europe and the fresh water lakes of the United States and Canada are totally destroyed.

The pollution of air on the surface of the oceans poses a great threat to mankind. We do not know how long plankton, multi-cellular beings, which produce about 90 percent of the world's Oxygen, can survive. They live on the surface of water.

If the quantity of oxygen in the air is reduced even by 10 percent, it would become difficult for us to breathe. The air would not support and sustain life and all plants and animals, including human beings, would die and disappear from the face of the earth. It is not a theory which may be right or wrong. It is a scientific fact which cannot be refuted.

It is estimated that if air pollution increases at the present rate for 50 years more, 50 percent of plankton will die and the quantity of oxygen in the air would be reduced by the same proportion.

Sea pollutants also pose a threat to the existence of

plankton as well as marine life. When ships sail from Africa to South America, they pass through two thousand kilometres of water, which is full of waste material, produced by the people living on land. The garbage consists mostly of plastic materials, which neither break up on land nor in water.

There is another waste dump thousands of kilometres long near Guam Island which has a big air and naval base of America.

Huge oil spills also drift and accumulate at this place and kill oxygen producing plankton

Accumulation of waste materials in the oceans of the world is more deadly and dangerous than atomic weapons. There may not be an atomic war due to the balance of power, but destruction of plankton and reduction of the amount of oxygen in the air would be catastrophic for plants and animals including human beings.

- (a) We shall breathe with difficulty as if we are on top of the Himalayas. Every living being would always be panting as if something is choking and suffocating it.
- (b) For the lack of oxygen in the air no fire will burn and no one would be able to light a cigarette.
- (c) Workers and farmers would not be able to work in the factories and fields as they work today and students would not be able to concentrate on their studies in the classroom.

In the biology department of Harvard University experiments were made on some animals including rabbits. It was discovered that when sufficient oxygen was not received by the brain cells, they did not issue orders promptly to different parts of the body and when they did issue orders the response from different organs was slow and faulty.

As a result of the reduction of oxygen in the air, a worker would take a long time to pick up a tool and start work. If the driver of a car would like to slam on the brakes and avoid an

accident, there would be a crash before the brakes are used. Besides, our memory would become very weak and all of us would suffer from forgetfulness.

Just like the brain, our sensory nerves, would also be paralysed and would not function properly.

Pollution became a big problem from the time the first atomic bomb was exploded. The Super Powers started making and exploding bigger and bigger bombs and polluting the atmosphere.

The biggest pollutant of atmosphere is radiation, which is a by-product of the fission of atoms in atomic power plants. Atomic power plants themselves are ticking time bombs. If accidentally the graphite core, which contains atomic fuel bursts causing heat and radiation to escape, great havoc and destruction would be caused for thousands of miles around.

While atomic power plants are producing cheap electricity they are also producing the most deadly and dangerous material, radioactive waste. No one knows how to dispose of it properly. All scientists of the world are scratching their heads but cannot find a satisfactory solution to this problem.

It was first proposed that this dangerous waste should be put in sealed containers and dumped into deep sea. Then it was realized that if due to water pressure the containers burst and radioactive material escapes, all marine life including plankton would be totally destroyed. Even if the containers do not burst, they would disintegrate in the course of time and the lethal material would escape.

When the man landed on moon, it was suggested that radioactive material be sent to the moon and deposited there. This idea was also discarded due to the following reasons:

- (a) There was the risk that rockets carrying the deadly material may fall back on the earth by accident or they may explode in the air. In each case the result would be catastrophic.
- (b) The moon has no air, but its low gravity and big

variation in temperature during the day and night would help in scattering the waste material and polluting the surface of the moon. In that case its economic exploitation in future would become impossible.

- (c) The companies producing electricity could not afford the exorbitant cost of sending the deadly material to the moon.

The rich nation of Japan ignored the advice of Jafar as-Sadiq (A.S.), polluted its environment and suffered the consequences. After World War II, in which Japan was defeated, the average yearly income of a Japanese worker was only US\$30. Today it is US\$500. In the production of ships, radios, televisions, tape-recorders, watches and motor bikes, Japan is first in the world. It is second only to America in the production of automobiles, computers and rayon cloth. Its high quality goods have captured the markets of the world.

This economic and industrial miracle was made possible due to the discipline and dedication of Japanese workers and crash industrial programmes which were carried out in total disregard to their environment.

From the time of Hippocrates, the famous Greek physician, till today about 40,000 kinds of diseases have been diagnosed, their symptoms recorded and treatments prescribed, but the diseases, which have appeared in Japan due to the pollution of their environment are unknown to the science of medicine.

A new and dangerous disease has appeared recently in Japan. This disease is called Eta Eta because the patients cry Eta Eta in pain. The first symptom of the disease is severe and unbearable pain in the bones. After sometime, the bones become so brittle that they break into pieces like glass. The cause of the disease is accumulation of large quantities of cadmium in the body by drinking water and eating agricultural products, which have been contaminated by that element.

Another new disease has appeared on Kyushu, Japan. Those who suffer from it lose their eyesight and the tissues of their bodies wither away. As a result, they cannot move their limbs. If they are not treated properly they gradually die. The cause of the disease is accumulation of mercury in the body through polluted water and food.

Industrialized nations have polluted lakes and oceans so much that fish and other marine animals have high levels of chemicals in their bodies and it is dangerous to eat their meat. Some persons, who were shipwrecked and were drifting in a boat, survived by eating the meat of a tortoise. When they were rescued and taken to a port, they fell sick. It was found that their sickness was due to presence of large amount of mercury in their bodies.

Mercury is a highly toxic substance. In the 18th and 19th centuries physicians in Europe used to treat syphilis with medicines containing mercury, but when it was found that it damaged the eyes of the patients and could make them totally blind its use was discontinued. However it is still used in ointments for burns and skin diseases.

Japanese physicians are of the opinion that the spread of asthma is not due to lack of oxygen in the air, as some people think, but it is due to the smoke of factories, which contains poisonous gases.

The Japanese were proud of the beauty of their country, but it has been totally ruined by industrialization. To improve the situation they have drawn a very ambitious plan, which would be completed by the end of the century. They would break up big cities, which create problems and produce pollutants, into three separate areas: Industrial, Administrative and Agricultural, Educational and Residential areas. They also plan to install filtering devices in industrial plants so that industrial emissions may not pollute the environment. Most probably all industrialized countries would follow Japan if this scheme gives positive and satisfactory results.

Aryans always refrained from polluting soil and air,

although they had no industry at all. It is highly surprising that they had come to know that their environment should not be polluted. Some scholars think that they got that idea and learnt many other things from a highly civilized and intelligent people, who inhabited the earth before and were destroyed due to some natural calamity.

In ancient India sewers were built so that the earth might not be polluted, but the Indians polluted their rivers by draining sewers in them. They believed that water would purify sewer waste, which was, to some extent, correct. The microscopic organisms in water break up the waste, but if large number of sewers end up in a river, they would not be able to cope with the problem.

Indians had not discovered oxygen and did not know about its presence in water, but they had discovered the cleaning properties of water. That is why they used to bathe in rivers to clean themselves. Even today the best means of cleanliness in India is water.

The ancient people of Europe and India were very much concerned about pollution of their environment at a time when cities were small and pollution was not a big problem. They did not bury their dead so that the earth might not be polluted. They either burnt them at a place far away from the cities or put them on slabs of stone at an elevated place till they decomposed and nothing was left of them except dry bones, which were put in jars of stone. They learnt to bury dead bodies, when they came in contact with other people, but they would bury them only during wars and epidemics, when there were large numbers of bodies to dispose of.

Aristotle writes in *Organon* that Alexander wrote to him the following letter from India:

"I was surprised to see Indians burning dead bodies of the soldiers, killed in the war. But they did not burn the bodies of high ranking officers. When I asked them the reason for burning dead bodies of soldiers, they said that they did not want to pollute the earth. When I

enquired as to why they did not burn the dead bodies of officers, their reply was that they would not pollute the earth. I suppose they do not burn the bodies of their officers because it would be a disrespect to them."

Aristotle was so much impressed by that letter that he made the following remarks in his book: "It would be better if the people of Greece also burn the dead bodies just like the Indians."

The great teacher, Confucius, who was born in 550 B.C. and died in 479 B.C. also used to ask his followers not to pollute their environment. Since he had spent a lot of time in travelling he might have learnt that lesson from the Aryans, who had settled in India two or three thousand years before Christ.

THOUGHTS, WORDS AND DEEDS

Jafar as-Sadiq (A.S.) has said that words and deeds of a person should be in conformity with his thoughts. He must say what he thinks and do what he believes to be correct.

He believed that all persons are born truthful and in the beginning their actions are in harmony with their thoughts. But when they grow up some of them become hypocrites and start telling lies and pretending to be what they are not. There is always harmony between the thoughts and actions of a child. If he likes someone he would go to his arms, otherwise he would turn his face away. He would accept the things he likes and refuse to take the things which he does not like. These facts prove that everyone is born honest and truthful.

Today biologists and anthropologists have gone a step further than Jafar as-Sadiq. They say that in the beginning human beings were just like the animals. They were not double faced and hypocrites. They were not capable of telling lies or pretending to be what they were not. Their outward behaviour was a true reflection of what was inside. When two animals meet, either they like each other and become friends or they hate each other and fight. It seems that the inner feelings of animals are written boldly on their faces and bodies and are read by other animals at a glance.

It was only after human beings learnt to speak and convey their thoughts to others that they started telling what was not in their minds and pretending to be what they were not.

The Danish scholar, Paul Muller, has written that in the beginning human beings were ignorant of two things-falsehood and death. In his novel, *"Death of Able"*, which is a masterpiece of modern literature, he writes that Cain ran away after killing his brother, Able. When Eve came out and saw her son lying on

the ground she thought that he was sleeping. She raised his head gently and tried to wake him up in vain.

When Adam returned before sunset, she told him that Able was sleeping on the ground and would not get up.

"When did he go to sleep," asked Adam.

"He is sleeping from the middle of the day," replied Eve.

"He must be tired; let him sleep," said Adam.

When it became dark Adam brought Able inside the tent and put him on his bed. Then both of them retired to sleep.

When they woke the next morning they found Able still sleeping. Adam thought that Able had fallen from a tree again as he had fallen before and had not opened his eyes for one day and one night.

He lifted him in his arms, took him out of the tent and laid him to rest in the sun. In the evening he took him back to the tent. Adam did the same thing again for a few days. During that period he tried to wake him up many times so that he might have his food.

In the evening Adam brought Able back to the tent and they found that a very bad smell was coming out of him. It was the same smell, which came from dead animals.

The next morning when they took him out of the tent, they saw that his face had turned black. While both of them were wondering as to what had happened to him, they noticed that some vultures had appeared in the sky. As soon as Adam moved away from Able and Eve went inside the tent, the vultures surrounded Able. They would have torn his body to pieces with their sharp beaks and claws had not the shouts of Adam frightened them away.

Both of them sat near the dead body of Able to protect it from vultures which were hovering around to attack it. They could not take the dead body inside the tent because of the bad smell, which was coming out of it. They did not know that he was dead. They could not believe that a human being could also

die like an animal.

It is not surprising. Man appeared on the surface of the earth about 5 or 6 million years ago, but even now the most learned and intelligent people do not think that man can die. They think that he has an eternal life and his soul survives after his body is dead and his bones are destroyed. Even the materialists, who do not believe in the existence of the soul think that man is never totally destroyed. Something of him survives after his death in the form of waves.

Maeterlinck (Count Maurice) the distinguished Belgian writer has said that when reflection in water of a meteor which fell on the earth in a dark night millions of years ago is not destroyed, how can a man be totally destroyed.

There is a controversy among scholars as to when the first man appeared on earth. Some say that it was about 5 million years before Christ and some believe that it was about 65 to 70 million years ago, just after the third period, when the dinosaurs disappeared.

The fossil of a man which has been discovered in China recently confirms that humans beings appeared on the earth about 60 million years ago, after the end of the third period, when there were no perennial rains and floods, which cut the mountains and created caves.

Early man was covered with hair from head to toe. He was not able to defend himself or run very fast. He therefore, was easy prey to meat eating animals. Most of his time was spent in eating grass with goats and sheep or scratching his body

The fossil of the animal which, according to Darwin, is the link between man and the apes, has not been found yet. Darwin believed that early man was not able to pick up anything and put it in his mouth because the fingers of his hands were quite different from what they are today. It was over millions of years that the fingers of his hands and feet developed and changed to the present shape and form.

Marshal McLuhan believes that what made the savage man civilized was his act of working with his two hands. This resulted in the development of two hemispheres in his brain and he became strong and intelligent. He says that if due to some catastrophe the adult population and its accumulated knowledge is destroyed and only children are left, they would become like wild animals. There would be nothing to make them civilized.

Since a man works either with his right hand or his left, only one part of his brain works and the other half stagnates. The left hand and left leg of a man who works with his right hand do not work efficiently. One does not feel it, but when he wants to kick a football with his left foot, he feels that there is a vast difference between his right and left legs.

When human beings were not civilized and walked on their hands and feet, they were morally superior to the civilized men of today since they didn't tell lies. It can be said that falsehood and hypocrisy are the bane, curse or attributes of civilization. Even today semi-civilized people of New Guinea and other Pacific islands do not tell lies. The more backward the people, more honest and truthful they are.

Dr. David Livingstone, who discovered the source of the river Nile and spent his life in the service of black people, writes in his memoirs that the people of Tanganyika were not able to tell a lie even for the sake of precious things or to save their own lives.

He stayed for a long time in Tanganyika and raised the British flag to protect the black people from Arab slave hunters. He had instructed them that whenever the Arabs wanted to capture them, they should tell them that they were British subjects so that they might not be captured and sold as slaves. However, his critics said that he had done so to capture and annex central Africa to the British Crown, which proved to be correct. Tanganyika was declared a part of the British Empire. By his own lie he proved that he was a civilized man.

He stayed in Africa for 10 years. When there was no news about him, Mr. H. M. Stanley, a newspaper reporter from

the New York Herald Tribune, was sent to Africa to find out whether he was dead or alive. Stanley went to Africa and found him.

Stanley was sent to Africa again on a geographical expedition. He discovered the Great Victoria Falls on the Zambezi River. During his second expedition, Stanley had to work as a judge also and dispense justice to the members of his expedition. He condemned a black porter to death for killing a fellow porter and threatening to kill others as well. Before he was executed, Stanley told him that he would spare his life if he promised not to hurt others. But he refused to do so and continued to say that if he remained alive he would kill his fellow porters. He could not tell a lie even to save his own life.

Things have totally changed since then. The people of Africa have become civilized and they tell lies even for small things.

Jafar as-Sadiq (A.S.) hated falsehood and hypocrisy. He was of the opinion that the words of a person should be in conformity with his thoughts. He lost his life because he could not be a hypocrite and say something in which he did not believe.

SCIENCE AND PHILOSOPHY

Jafar as-Sadiq (A.S.) was a religious leader, a scientist, a philosopher and a man of letters. He used to teach theology, philosophy, science and literature. He was the first scholar in the world, who separated science from philosophy. No one before him paid any attention to the important point that they are two different subjects.

The philosophers of ancient Greece considered every kind of knowledge as a branch of philosophy. That is why they called it the fountain of knowledge. To them poetry, music, painting and sculpture were also off-shoots of philosophy. It was only in later periods that art and literature were classified separately.

The learned scholars of Alexandria, which was a centre of knowledge and learning in ancient times, also held the same view. A philosopher was supposed to know everything, since every kind of knowledge was considered to be a part of philosophy.

This state of affairs continued till Jafar as-Sadiq (A.S.) separated science from philosophy. Today we are not surprised to find that they are two different subjects, but in his time it was a revolutionary idea. The remarks he made, while pointing out the difference between the two, shocked many philosophers. They can be divided in two parts. The first part reads as follows:

"Science and philosophy are two different subjects. Science gives us definite and exact results even if they are small and insignificant. But philosophy serves no practical purpose and gives no useful results."

According to the above statement those who had spent their lives in philosophical speculations had wasted their time in a useless pursuit and the knowledge they had acquired was

of no use to them or to others.

It is a common experience that those, who consider the knowledge of others as worthless, create enemies. When Ibrahim Ghazzi, a student of Malik bin Anas, the founder of Maliki sect, heard the above theory of Jafar as-Sadiq (A.S.) he said to Malik: "It was a waste of my time as well as of yours to teach me philosophy." Malik was so offended by those remarks of Ghazzi that he did not pardon him till his death.

Criticising the theory of Jafar as-Sadiq, the French scholar, Jean De La Croix, has remarked that he should have said that philosophy is of no use until it becomes a science.

The French scholar believes that philosophy is useful if it serves a purpose and science is of no use as long as it remains in the form of theory and serves no useful purpose. The Laws of Planetary Motions were discovered by Kepler about four hundred years ago and the Laws of Gravitation were discovered by Newton about three hundred years ago. No scientist had any doubts about their accuracy, but the knowledge of these laws served no useful purpose and no practical use was made of them for a long time.

It was only in 1957 that Russians sent the first satellite into space and made use of the laws discovered by Kepler and Newton. Today rockets which orbit the earth or travel to different planets follow these laws. With the help of satellites, we broadcast T.V. programmes around the whole world, make weather predictions and correct geographical maps.

The question naturally arises as to why Jafar as-Sadiq (A.S.), who himself taught philosophy, said that it served no useful purpose. We can have a satisfactory reply to this question when we read the second part of his statement which reads as follows:

"However, it is beyond the scope of science to discover the ultimate truth; but it is within the domain of philosophy to do that."

Jafar as-Sadiq (A.S.) was not only a great scholar, he was

also a religious leader. He did not want to find the truth through philosophy. He had already discovered it through religion. However, it was his firm conviction that philosophy would solve many problems. It was for philosophy to discover why man as well as the universe were created. Who was their Creator? What was his object in creating them and when would the world come to an end?

It appears from his definition of science and philosophy that he considered philosophy to be more important than science because it endeavours to find out the ultimate truth which is God Himself.

He was more interested in philosophy than in science because it helped to recognize the Creator. But as a Muslim and a Unitarian he believed that Allah should be recognized through the guidance of religion and not by the help of philosophy.

In the first century Hijra (622-722 A.D.) philosophy did not play an important role in Islam. It was from the beginning of the second century Hijra (722-822 A.D.) that Muslim scholars, who had studied philosophy, started defining and interpreting fundamental and secondary rules of Islam in accordance with the principles of philosophy. This proves that Muslims of the second century had become more enlightened than the Muslims of the first century Hijra. No doubt, contact with other people had influenced them and broadened their minds.

Muslim scholars, who defined and interpreted fundamental and secondary rules of Islam in accordance with the principles of philosophy were called Mutakellemin (linguists) and this branch of knowledge was known as Ilm-Kelam.

During the Crusades, which lasted for about two hundred years, the books of Muslim scholars were translated into Latin, which was the literary language of the Europeans. Christian scholars came under the influence of Muslims and learned from them how to reconcile religious principles with philosophy. If the Crusades had not occurred, the Christians would have remained ignorant of the knowledge which was acquired and

accumulated by the Muslims over many centuries.

One of the French philosophers who was inspired by Muslim writers and tried to reconcile Christian faith with philosophy was Male Branche. He was born in 1638 A.D. and died in 1715 A.D. He was an admirer of Rene Descartes and subscribed to his philosophy, known as Cartesian philosophy, which had captured the imagination of the people and spread throughout Europe even before Descartes' death in 1650 A.D.

Descartes sought to know why a thing is said to be true. The cornerstone of his philosophy was that nothing should be accepted as true, unless it was proved to be true. He had doubts about the truth of every Christian dogma and even in the existence of God.

He became so famous for his philosophy that people forgot that he was a great scientist also and had made important discoveries in mathematics and physics. The laws discovered by him are known as Cartesian Laws.

When Descartes died, his student Male Branche was only twelve years old. After he finished his studies, he wrote his famous book, *"The Search For Truth"*, in which he is stated to have reconciled the principles of the Christian faith to the philosophy of Descartes. As a matter of fact he has clearly followed Muslim *"Mutakellemin"*. Instead of expressing any doubts about the truth of Christian dogmas like his teacher he has tried to propagate the ideas that human beings are a composition of two elements-the body and the soul. The union between these two elements is called *"Life"* and their separation is *"Death"*. However, it is only the body, which dies and not the soul, which is eternal and indestructible.

Mutakellemins, who were Muslims, believed in the existence of two separate entities - the body and the soul. They also believed that the human body was destructible and the soul was eternal. While the two were connected together, a man was alive, and when they separated he was dead. But it was only the body which perished with death and not the soul. After the soul separated from the body, it had its own independent

existence with all the attributes and characteristics of the time, when it was connected with the body, except that it needed no nourishment and clothing.

In the course of time, differences arose between Mutakellemin on the attributes and characteristics of the soul. Some of them held the view that although it was eternal and indestructible, it did not have the same perception and understanding which it had before when it was united with the body.

Those who believed that the soul retained all the attributes and characteristics of lifetime, contended that if it lacked characteristics of life, how would it give an account of its deeds on the Day of Resurrection?

Mutakellemin, who reconciled the faith of Islam with philosophy did so in such a way that no Islamic principles were compromised. One of those principles was the belief in Resurrection.

To a philosopher resurrection is impossible, if we do not believe in the eternal existence of the soul, but according to Islam, resurrection is possible even if the soul is dead. A Muslim also believes that he would be raised on Dooms Day in the same shape and form as before, but a philosopher does not believe in that.

CONVICTION AND SCEPTICISM

It has always been a topic of discussion between philosophers as to what is conviction and what is scepticism and will a time come when they would have no doubts at all?

Jafar as-Sadiq (A.S.) was of the opinion that scepticism originates from ignorance which seems to be quite true.

We have no doubts about the formulas of mathematics, because we know that they are correct, but we have no faith in the rules of psychology because we are not sure of their soundness. We can say with certainty that if we multiply two by two the result is always four. However, we cannot be sure about the result of any rule or formula of psychology. There are so many exceptions that it seems that it has no rule at all.

There are vast differences between people because of race, religion and nationality. In addition, there are differences between the members of the same race, religion, community and nationality where mental outlook, behaviour, taste and aptitude are concerned. No two persons are alike. Even members of the same family differ from one another. That is the reason no rule can be made which may apply to all of them.

The French philosopher, Henry Louis Bergson, has said that the laws of psychology are true for the savage and semi savage people only. They are more applicable to savage people than to semi savage people, because in a savage society the knowledge of its members is limited and all of them think in the same way. But when their knowledge increases and they become semi-civilized, they do not think in the same way as they used to think before. A psychologist, therefore, can make laws for a savage society with confidence that they would apply to each and every member of that society, but he cannot make laws, which may apply to all members of a civilized or a semi-civilized society. He concedes, however, that some laws can be

made for groups of civilized and semi-civilized people.

There is a rule in psychology about the effect of discrimination on the morale of workers. It reads as follows: "If all workers in a factory do the same job, work an equal number of hours and produce the same amount of work, but some of them are paid more than others, it (preferential treatment) would have a demoralizing effect on the workers who are paid less.

Bergson writes that it is said that the law of discrimination operates everywhere in the world, but it is not so. In some places it does not operate even in a group of one thousand people. H.G.Wells, the famous English writer, who died in the year 1946 at the age of 79, writes in one of his books of travels that once he visited a factory, managed by the British people in Amritsar, India, and found that some workers were being paid more wages than others without any reason or justification, but those who received less, were fully satisfied. They used to say that everyone gets what is in his fate.

Giving another example, Bergson writes that rules for aesthetics have been made in Europe for judging beauty of persons and things, but when different nations of Europe do not accept them as true standards, how can they be acceptable to the people of the whole world. Some beauty experts of Europe are of the opinion that the tall black people of southern Sudan are the most beautiful people in the world. The men and women of the tribe of Cumpia in New Guinea consider themselves as the most beautiful and Europeans as the ugliest in the world. They are so sure of their judgement that nothing will change their views. To a Frenchman, the most beautiful thing in the world is the Eiffel Tower and to an Italian, the harbour of Naples. When human beings differ so much about the beauty of living and non-living things how can we make rules for aesthetics which may apply to everyone and everything in the world.

Jafar as-Sadiq (A.S.) was of the opinion that Allah has made most reliable and dependable laws, which govern the universe. There can be no doubt about their accuracy and

universality. The laws of Islam are in the same category, because they were made by Allah. They are applicable to all people at all times and under all circumstances.

ONLY IGNORANT PEOPLE DO NOT BELIEVE IN ALLAH (SWT)

Jafar as-Sadiq (A.S.) has said that only ignorant people, who cannot use their brain, do not believe in Allah. They are just like the blind and the deaf, who can neither see nor can they hear. They spend their lives in eating, drinking, sleeping and satisfying their bodily needs. They are, as Allah has said in the Quran, like animals or worse than animals. If they could think about how living and non-living things were created, they would have believed in Allah and realized how vast His knowledge is and how great His power is.

By His knowledge and power, Allah created every living being and endowed each of them with special powers and instincts so that it may succeed in its struggle for existence. How wonderful devices the plants and animals choose for the survival and continuation of their species.

Marvelling at the creations of Allah, Jaffer as-Sadiq (A.S.) remarked: "How wonderful are His creations. He created animals which can survive in severe cold weather of the frigid regions of the poles and He created the animals, which can live, prosper and propagate in the scorching heat of the tropics and sandy deserts."

Many animals, which live in very cold regions sleep during the long winters, which last six or seven months, without eating or drinking and this does not have any adverse effect on their health. The hearts of these animals beat about five thousand times per hour when they are awake during the summer but when they are asleep in winter their hearts do not beat more than sixty or seventy times per hour. If someone goes near these animals when they are sleeping, and puts his hand on them, he will find them as cold as ice. Nevertheless, they are alive and shall remain so till they wake up with the advent of

summer. On the other hand, if the body temperature of man drops to half its normal level, he would surely die. This is a great manifestation of the knowledge and power of Allah.

In contrast, the animals which live in the desert, have their own distinct survival instincts. No herbivorous animal, except the camel, can remain alive in the desert without water. It can survive for a number of days only on dry and thorny bushes of the desert. A camel can sense presence of water from a great distance, run day and night and take its owner to the source of water, if he is not forced to go to a different direction.

If a camel knows that it has to cross a desert, where there is no water, it drinks and stores sufficient water, which lasts for a number of days. All these gifts and powers have been given to this animal by Allah so that it may survive in a dry desert, but the ignorant people think that camels came into being by themselves with their special qualities and characteristics.

ETERNAL AND EVERLASTING LAWS OF ALLAH (SWT)

A very important theory of Jafar as-Sadiq (A.S.) is that Allah, who is the Creator and Guardian of the universe, runs it by eternal and everlasting laws, made by Him. He once said to his students: "When we see some sudden and unexpected events, such as storms, floods, earthquakes etc., which cause great havoc and destruction, do not think that they are due to some disorders in the system of the world. These events, which seem quite unexpected and unforeseen to you, follow some permanent and unchanging laws of Allah."

This theory of Jafar as-Sadiq (A.S.) has been accepted by scientists. They confirm that storms, hurricanes, earthquakes and volcanic eruptions etc. are not some unusual and unexpected events. They follow fixed and permanent laws of nature. They seem unusual and unexpected to us because we do not know the laws which they follow.

For thousands of years, sudden changes in weather conditions were considered to be unforeseen, unexpected and unpredictable events, which happened due to some disorder in the system of the world, but today they are not considered as such, because we have learnt the science of meteorology. Satellites orbit the earth and forecast the change of weather. Human beings will also be able to forecast earthquakes and volcanic eruptions when they have learnt the laws which govern them.

The philosophers, who believe in Allah, say that many things seem to change suddenly in our eyes, but nothing changes in the eyes of Allah. He is Eternal and has absolute knowledge. Therefore, the laws, made by Him are also eternal. Since we cannot foresee the future, we make laws to meet our present requirements and have to change them with changing

circumstances. But Allah, who has knowledge of everything and knows what changes will take place till the end of the universe (which has no end), has made laws, which are unchanging, permanent and everlasting.

Even those philosophers, who do not believe in Allah, agree that the laws of the universe are permanent and unchanging. Count Maurice Maeterlink, who was a great thinker and an atheist has said that it would not be a sudden and unpredictable event if the whole universe is suddenly destroyed and millions of galaxies with their billions of stars fall apart. This would happen in accordance with some fixed laws of nature. If we know them, we will be able to predict and forecast the destruction of the universe.

No one in the world before Jafar as-Sadiq (A.S.) had ever thought and said that the universe is governed by permanent and unchanging laws. Ancient people believed that the laws of nature were always in a flux. Aristotle put his seal of confirmation on that belief. His theory was as follows: "The universe came into being by combination of two elements-matter and form, which are inseparable. Since movement and change are intrinsic properties of form, everything must change when these two elements combine. It, therefore, follows that the laws of nature are subject to constant change."

Plato, who was a teacher of Aristotle and the greatest thinker of ancient times, did not say anything specifically about the laws of the universe. There is no reference to this subject in his book, *"Dialogue"*.

Just like other theories of Aristotle, this theory also became an important cornerstone of science and remained so till the middle of the 17th century. During this long period no one ever imagined that it could be wrong. Descartes, the French mathematician and philosopher, who died in 1650 A.D., was the first scholar to point out that it was wrong.

In the 18th century there was great progress and expansion in the field of astronomy. It was started by Copernicus and Kepler and followed by Galileo and Newton. Gradually

astronomers realized that the universe is much larger than what the ancient people had thought it to be. In the 19th century many new galaxies were discovered. It was also discovered that all galaxies have billions of suns or stars. These startling discoveries made astronomers realize that the universe is limitless and eternal. It is so vast and the laws, which govern it, are so permanent and enduring that if a star explodes in a galaxy, it has no effect on the neighbouring stars. This shows that it had exploded according to some permanent and unchanging laws of the universe.

In the first half of the 20th century the small world of atoms was discovered. Scientists learnt that the laws of motion, which operate inside an atom, do not change and cannot be suspended. Electrons rotate round nuclei three quadrillion times per second under all conditions. Experiments were made on atoms of iron. It was heated till it turned into gas and then the speed of rotation of the electrons was checked. It was found that there was no change at all. This perpetual and constant motion of electrons round the nuclei is disrupted only when atoms are split and are separated from the nuclei.

The laws which govern the rotation of electrons round the nuclei are the same which govern the rotation of the earth around the sun and the sun around the constellation of Hercules and the constellation of Hercules around our galaxy and our galaxy around some unknown object. The period of full rotation of constellations and galaxies is so long that even if we live for billions of years, we cannot see even one circle of the constellation of Hercules around our galaxy.

Astronomers have come to understand that galaxies rotate around themselves as well as around some other object, which is not known to them. Most probably that object also rotates around some other unknown object.

We are surprised when it is said that the earth is only ten thousand years old and that Adam was born six thousand years ago. Scientists confirm that the earth came into being approximately 5 billion years ago. It seems to be a very long

time, but it is nothing in comparison to the time a galaxy takes to complete one revolution around the unknown object. It is estimated to be about twenty five thousand billion years.

No one knows how many galaxies there are in the universe. By a rough estimate, they number about one hundred billion but who can verify this figure when we cannot see through our biggest telescope beyond nine million light years. If we have very powerful telescopes through which we could see up to 20 to 30 billion light years, we shall discover new galaxies. There is also a possibility that there are many galaxies hidden behind the galaxies which are visible to us.

Since the discovery of anti-matter, it is speculated that there may be another universe of anti-matter as large as our own universe or even larger. If it is so, we cannot know if the laws of physics and chemistry, which operate in this universe, also operate there or if that universe has different laws.

It is quite correct to say that no science, other than astronomy, proves the existence of Allah so conclusively. It also proves that the laws, which govern this vast, timeless and limitless universe are permanent and everlasting.

The concept of a universe of anti-matter is only a science fiction to day. But many science fictions have become facts. Robert Clark, an English writer of science fiction, wrote in a book in 1948 that a satellite was sent 36,000 kilometres above London. Since the time it took to orbit the earth was synchronized with the rotation of the earth, it always remained at one and the same point above London.

Ten years later, on the 4th of October, 1957, Russians sent their first satellite, named Sputnik, to outer space. It was a small satellite weighing only 83.6 kilograms. Up to that time scientists had not thought of sending big satellites into orbit round the earth and it had not occurred to them that if a satellite is sent to a height of 36,000 kilometres it would always remain at one point above the surface of the earth.

Clark had not shot an arrow in the dark which hit the

target accidentally. In addition to mentioning the height of 36,000 kilometres, he had discussed in his book many other important points, which were made use of by scientists. Today television programmes are broadcast regularly throughout the world by the help of three satellites. This unique and useful discovery was made by a man, who had not studied in any university nor had a college degree.

Not only common people read science fiction books as a pastime but learned scholars also study them because some of them proved to be very useful and helpful in the past. The Russian government rewards writers of science fiction just as it rewards writers of books of literature.

Some philosophers are of the opinion that a man cannot imagine what does not, in fact, exist in nature. Therefore, the idea of a universe of anti-matter should not be rejected as science fiction. It is possible that there may be an element of truth in this story.

No logical mind would ever accept that this timeless and limitless universe could have existed, if it was subject to change every now and then. It is, no doubt, governed by fixed and unchanging laws, as Jafar as-Sadiq (A.S.) has said.

The question arises whether the laws, governing the universe, would still operate, if it comes to an end. The universe is eternal and everlasting. It would never come to an end. There may be a change in its present shape and form but that change would also come in accordance with some stable and permanent laws made by Allah (SWT).

HUMAN BEINGS SHORTEN THEIR LIVES THEMSELVES

Jafar as-Sadiq (A.S.) has said that human beings were born to live long, but they shorten their lives themselves. If a man strictly follows the dictates of Islam, abstains from things proscribed under Islamic law and does not indulge in excessive eating and drinking, which is condemned in the Quran, he is sure to enjoy a long and healthy life.

Without a shadow of doubt, longevity depends upon following the rules of hygiene and abstaining from excessive eating and drinking.

In the first century B.C., the average age of a person in Rome was 22 years, because the rules of hygiene were not being followed. Moreover, the patricians (people of the upper class) consumed so much food that they suffered from nausea. The plebeians (common people) followed eating habits of the patricians as far as possible.

The rich people of Rome, who usually suffered from nausea after their meals, had a special room, called Vomitorium which was next to the dining hall of their palaces. They would retire to that room after meals and take medicines so that they might not die due to overeating.

In early part of the 20th century, the average age of the inhabitants of England was 50 years, because they had better hygienic facilities and they did not indulge in excessive eating like the people of ancient Rome. Hygienic conditions in European countries have improved so much today that the average age of a man is 68 years and the average age of a woman is 78 years. Life expectancy would increase further, when a cure for cancer is found and heart attacks and brain haemorrhages, which are due to blocking of the arteries, are prevented.

What increases the life span of a person is not the treatment of certain chronic diseases. It depends, to a large extent, upon his following the rules of hygiene and abstaining from overeating. However, a man would eventually die. When he becomes old and the main organs of his body are worn out, even the diseases which are curable will kill him unless old age, which according to some biologists is itself a disease, can be cured.

Pollution, which is a modern phenomenon, and poses a great threat to mankind, reminds us of the warning given by Jafar as-Sadiq that it would become difficult for us to live on this planet if we pollute our environment. The World Health Organization has reported, after studying air pollution in some big cities in U.S.A. and Mexico that living and breathing polluted air of these cities has the same adverse effect on lungs and other organs of human body as smoking 40 cigarettes a day. That is why many inhabitants of these places are suffering from chronic ailments including lung cancer.

Another health hazard for mankind is sound pollution. According to statistics constant sound shortens a man's life. It is not correct to say that when a person gets used to sound, it does not hurt him. No one ever gets used to sound. It goes on, slowly but surely, damaging his nervous system and the cells of his whole body.

A French expert, who has studied the effect of sound on human cells, believes that constant sound wears away cells of the human body just as oxygen wears away iron. He is of the opinion that residential places in a big city should be constructed with materials, which are non conductors of sound, so that they may be fully insulated. The sound of radios, television and tape recorders should also not disturb the comfort of the inmates. If it is not possible to construct the whole house with such materials, there should be at least one fully insulated room in every house so that the inmates may retire there, take rest and save themselves from the ill effects of sound waves.

He says that one of the damaging effects of constant

sound is unexpected and sudden madness. Due to constant sound a kind, tolerant and good natured person becomes unkind, intolerant and ill tempered without any rhyme or reason. Constant sound not only makes one tired and exhausted, it reduces his life span from 5 to 10 years. It is therefore, advisable that one should not live in a big city, if possible.

Those, who suffer from the ill effects of sound, do not know the cause of their illness. When they are examined by a doctor, no defect is found in the main organs of their bodies.

Another thing which shortens a man's life is improper diet. The food, which is prepared in the factories and is consumed by the people of Europe, America and other industrialized countries has many harmful ingredients.

Cowboys had the most nourishing food in America. They had cream and butter to eat and fresh milk to drink. Most of the time they lived in open rural areas away from crowded and polluted cities. For that reason they retained the vigour of their youth up to the ages of 80 and 85. But today they also eat, like all other Americans, food which contains harmful chemicals and colouring matter, and drink liquids which are full of sweetening agents and gases. Unnatural and artificial food produces uric acid in their blood stream. As a result, they suffer from severe pains and many other ailments, which make them unfit for work when they are only 50 years of age.

It is reported that no one falls sick in Alaska, because their food is wholesome and healthy. It consists of milk, reindeer meat and white fish, which abounds in the rivers of the north. They have only toothache and that also at a very advanced age. Most Alaskans have their full set of teeth up to the age of seventy or eighty.

Some Alaskans have very large herds of reindeer, numbering about 1000 heads, but they have no problem in feeding them even during the long severe winters, when the whole country is snow bound. The reindeers dig deep holes in the snow with their sharp hoofs and eat the moss, which grows under it.

Since there is no sickness there are no physicians in Alaska. There are only a few dentists to take care of the old people. The average age of a man in Alaska is 90 years and that of a woman 100 years.

It would not be out of place to mention that doctors and dieticians are of the opinion that if a man wants to have good health and long life he should eat fruits and vegetables. They say that it is the best food for those who are above thirty years of age. They also recommend that those, who are in this age group should eat lean meat and abstain from animal fat. But the people of Alaska never eat fresh fruits and vegetables at all, since they have none. It is only recently that some vegetables and fruits are being grown in hot-houses. This proves that longevity does not depend upon eating fruits and vegetables only, but there are some other factors also which contribute to long life, e.g. climatic conditions, life style of the people etc. etc.

Alaska is a very cold country. It is so cold that the inhabitants do not need refrigerators even in the summer season. All they have to do is to keep meat and other perishables at a place where the sun does not shine. The people of Alaska are also very hard working. Tending herds of reindeers and hunting fish always keeps them busy.

GOOD ADVICE FOR MOTHERS

Jafar as-Sadiq (A.S.) has advised mothers that they should put their new born babies to sleep on their left side. This is another proof that he was a genius.

For centuries this advice was considered by many as meaningless and absurd since no one could see any use in putting babies to sleep on the left side of mothers. Some people even went to the extent of remarking that it was dangerous to carry out his instruction. Mothers might take a turn while sleeping and crush the baby to death.

Mohammed Indris Shafei, who was born in the year 150 of the Hijra (772 A.D.) (two years after the death of Jafar as-Sadiq A.S.) and died in 199 Hijra (821 A.D.) in Cairo, was asked as to which side a mother should put her baby to sleep. His reply was: "There is no difference between the right and the left side. A mother can put her baby to sleep on any side she likes."

No one in the East or West took that advice seriously. Even during the Renaissance period, when scholars in Europe studied every theory critically, no one tried to find out whether it had a scientific basis.

In 1865, Ezra Cornell, a financier and philanthropist of America who had suffered great hardships during his childhood, founded Cornell University in New York. In this university he set up, under the department of medicine, an Institute for the Research on New Born and Suckling Babies.

This institute has been conducting research on the subject for about a century. During that period every aspect and every problem of newborn and suckling babies has been thoroughly studied and investigated. No institute in the world has more knowledge and information about babies than this institute. It is impossible that any subject, which is connected with babies, has not been studied there.

In the first half of the 20th century research scholars of the institute studied 466 pictures of babies in all the famous museums of the world. It was noticed that in 373 pictures mothers were holding their babies in their left arms and in 93 pictures in their right arms.

A research scholar of the Institute, who travelled to different parts of the world, observed that mothers in every country carried their babies in the left arms. Those, who took them in right arms, were left handed. They carried their babies in right arms so that their left hands might be free for carrying things. Women of Africa also carried their babies in their left arms, when they did not carry them on their backs.

No woman could give him satisfactory reply as to why she carried her baby in the left arm. Women in Africa knew that their babies liked to suckle milk from the left breast more than from the right. Some women expressed surprise that their babies could easily find their left breast in the dark when they were hungry during the night. It was explained to them that babies were guided to the left breast by their mother's heart beat.

Doctors, who work and study general behaviour of babies in the maternity wards of the attached hospital, send their reports periodically to the Institute. These reports show that babies, who are put to sleep on the left side of their mothers, sleep soundly and peacefully but those who are put on the right side, wake up every now and then and cry. It was also reported that for the first few days after their birth, babies would have no rest at all, if they are not on the left side of their mothers.

Research scholars of the Institute expanded the area of their studies. They tried to find out whether babies of all races (other than the whites) also behaved in the same way. After numerous observations in different parts of the world, it was established that it was a general and universal rule, which applied to babies of all countries and all races of the world.

Research work on the subject was continued. Experts tried to study the behaviour of unborn babies in the wombs of

their mothers through X-rays, but it did not produce any result and added nothing to their knowledge. After the invention of holography, holographic pictures of unborn babies were taken which revealed that the mother's heartbeat reached the ears of the baby in the womb.

Experiments were made on different mammals to find out the reaction of the fetus. All experiments showed that whenever the heart of the mother stopped beating, the fetus became restless and agitated, because it feeds on the blood, which comes to it with each and every heartbeat.

These experiments proved that unborn babies are not only used to hearing their mother's heartbeat, but their very existence depends upon them. Heartbeats mean to them a constant supply of food. Stoppage of heartbeats signals starvation and death. They depend so much upon the heartbeat that even after they are born, they become restless, if they do not hear it. A newborn knows its mother's heartbeat quite well and that is why it sleeps comfortably and peacefully, when it is on the left side of the mother and can hear the heartbeats clearly.

As an experiment babies in the nurseries of the Research Institute were segregated into two rooms. Artificial heartbeats could be heard in one room but not in the other. Babies who were in the room where heartbeats were heard, remained calm, quiet and peaceful, but those, who were in the other room, started crying. Since then all nurseries have devices which produce artificial heartbeats, so that babies may remain happy and contented.

Usually the heart of a healthy person, man or woman, beats about 72 times per second. As an experiment artificial heartbeats were increased from 72 to 100 and 120 times per second. As soon as the number of heartbeats was increased all babies started crying. This experiment showed that any increase or decrease in the number of heartbeats is, to babies, an alarm of danger which makes them cry.

It was also observed that babies, who were in the room where they could hear artificial heartbeats, had a keen appetite

for food, took it with great relish and gained weight. But those, who were in the other room, where no heartbeats were heard, had no inclination to eat and did not gain as much weight as babies in the other room, although all of them were given the same kind of food.

If Cornell University had not been established and the research work on babies was not done, no one would have ever realized the scientific importance of the advice of Jafar as-Sadiq (A.S.) that mothers should put their babies to sleep on their left side.

THE THEORY OF PERPETUAL MOTION

Jafar as-Sadiq (A.S.) has said that everything in the universe, including inanimate objects, is always in motion although we may not see it. There is nothing which is without motion.

This theory, which was unacceptable in his time, is a scientific fact today. It is impossible to imagine, explain and describe an object in the universe, which is without motion. Motion is the essence of being: If there is no motion there is no existence.

He has stated that it seems to us that when a person dies, his actions and movements come to an end. It is not so. They will continue in another form. Even if the smallest particles of the human body are converted from matter into energy, they will continue to move in the form of energy till the end of time.

He added that we feel the passing of time, because of our internal movement. Similarly our sense of space is due to this movement. Without it we cannot feel the passage of time and have a sense of space.

Jean Baptiste Moliere, the well known French actor and dramatist, who founded in 1680 the famous theatre, known as the French Comedy, once wrote a drama, in which the most interesting and strange phenomenon was that the hero had no movement whatsoever, but was alive. It shows his belief that there can be no life without motion.

There are two kinds of motion in every object - motion inside the atoms and perpetual vibration within the molecules. The molecules vibrate from zero to ten trillion times per second according to the degree of temperature.

EVERYTHING IS ATTRACTED BY ALLAH (SWT)

The above statement of Jafar as-Sadiq (A.S.), which was considered by many to be a doctrine of gnosticism, has proved to be a theory of science.

It was the belief of many Sufis and gnostics that the final destiny of man was that he would unite with Allah. Some of them went to the extreme and claimed that they were Allah themselves. That was in accordance with the doctrine of Wahdat al-Wujud (Unity of Existence)

Those who believed in that doctrine said that in the beginning there was nothing in the universe except Allah. He made everything out of himself. Therefore, every animate and inanimate object is nothing but Allah. However, they did not say it openly and in unequivocal terms for the fear of being persecuted. Some of the caliphs and their officers were so bigoted that they would have surely killed them, if they said that. Even if they were not killed, they would have been declared as kafirs (heretics) by religious leaders. As soon as a decree was issued against them they would have become outcasts and treated by people as if they were lepers.

To express their ideas and at the same time remain safe from official and public persecution the gnostics coined some special terms, e.g. Mei (wine), Saghar (decanter), Maikhana (tavern), Pir Mei Furush (Tavern keeper), Saghi (cup bearer), Mashuq (beloved) etc., etc., so that no one, except those who believed in Wahdat al-Wujud, might understand what they really meant. When recitation of Ashare Irfani (gnostic verses) became popular in Persia those terms entered Persian poetry. Then the gnostics expressed their philosophy in poems, using their special terminology without being declared as heretics.

Only once was the theory of Wahdat al-Wujud stated openly and publicly in the middle of the 17th century. Spinoza, who was a Jew from Holland, wrote a book in which he expounded and explained that theory. When his book was published he was declared a heretic by a Rabbinical decree.

Sufism and gnosticism gained strength in the third century Hijra (822-922 A.D.). The theory of Jafar as-Sadiq (A.S.) that everything is attracted by Allah, led those, who believed in the doctrine of Wahdat al-Wujud, to think that he also subscribed to their ideology. As a matter of fact he was totally against that doctrine. He believed in the principles of Islam. It was his firm faith and conviction that Allah is the Creator of everything in the universe, but He is quite separate from His creations.

Even in later periods, when science was separated from philosophy and gnosticism the theory of Jafar as-Sadiq (A.S.) "that everything is attracted by Allah", was considered to be a gnostic idea and not a theory of science. But today, when many new scientific discoveries have been made some scholars are inclined to believe that what he has said may be a scientific phenomenon. However, it is too early to pass final judgement.

As a rule, the waves of electrons do not scatter in different directions when they are released. They always go to one direction only. This however, is not the case with electromagnetic waves, which are used in radio and television. Progression of electrons in one direction is, in our view, just like turning of the needle of a compass towards North. It is said that it is pulled or attracted by the magnetic field of the north pole.

The compass, which was invented by Muslims, proved a great help in navigation. Without it Vasco De Gama could not have reached India in his boat, through South Africa; Christopher Columbus could not have discovered America and Magellan could not have navigated round the world and proved that it is a sphere. Even today, the compass is one of the main instruments of aerial navigation. No aeroplane can fly without it in spite of being connected by radio to control towers at airports, which guide them.

Rockets, which go to the moon also make use of the compass. By pointing to the north the needle of compass shows that it is within the magnetic field of the earth. However, rockets which are sent to different planets do not make use of the compass because it gets confused when it is out of the magnetic field of the earth and does not point in any particular direction.

Professor Dos of Washington University, who was a great physicist and astronomer, expounded in 1840, a new theory about the universe, which lent support to the statement of Jafar as-Sadiq (A.S.) that everything is attracted by Allah. He stated that the radio telescope, which had enabled astronomers to see distant objects, revealed that all galaxies and other heavenly bodies were proceeding at an incredible speed towards a focal point. After minute calculations it was worked out that they were hurtling in space towards that point at a speed of 285,000 kilometres per second (95% of the speed of light).

The author of that theory could not explain why these heavenly bodies have a curved path. This shows that they are within the gravitational field of a very powerful object, and that this object is made of matter, otherwise it could not exert such a tremendous force.

A big objection, which was raised against that theory, was that galaxies, which consist of matter, cannot move at that incredible speed.

Dos explained away that objection by saying that galaxies are in a state of plasma, which is the fourth state of matter. It is accepted by scientists that matter can be in the form of plasma, which is neither solid, nor liquid nor gas.

Physicists, however, were not satisfied by that explanation. They contended that matter could not travel at that speed, even if it was in a state of plasma. If it did, it would turn into energy and move in the form of waves.

In reply to his critics, Professor Dos said that what could be disputed was the material which the galaxies were made of,

but the accuracy of the speed at which they travel could not be disputed since that was determined by mathematical calculations.

This theory contradicts the theory of Abbe Lemaitre that the universe is in a state of expansion and that galaxies are moving away from one another at great speed. However, by observing only comparatively short distances, covered by a few galaxies it cannot be confirmed or denied that they are actually moving away from one another or that they are heading towards a central point.

From the beginning of the 20th century, scientists have been trying to discover and explain the shape of the universe and the movement of heavenly bodies, but whatever they have said so far is nothing more than theories. The Theory of Relativity is also a theory. Nothing has been proved except that a beam of light bends when it passes through the gravitational field of a large object.

Supporters of Einstein's theory contend that it is based on mathematical equations and must be correct. No one can challenge the soundness of mathematical equations. However, what they prove is that two given things are equal. They do not show the nature of the things tested. They are just like a balance. When its beam is in a straight line horizontally, it shows that the things in the two pans are equal in weight, but it does not show the nature of the things in the pans.

In his theory Einstein has said that the diameter of the universe is three thousand million light years. This has been proved to be wrong. We can see through radio telescopes up to a distance of nine thousand million light years. When more powerful telescopes, which are on the drawing board, are constructed, we may find that the universe extends well beyond that limit.

What Professor Dos has said is only a theory, just like any other theory and may not be correct. But it is exactly like the theory of Jafar as-Sadiq (A.S.). The only difference between the two is in the wording. Jafar as-Sadiq, has said that everything is

attracted by Allah, while Professor Dos has said that everything is attracted by a very strong central force, which we do not know.

JAFAR AS-SADIQ (A.S.) AND ABU SHAKIR

Jafar as-Sadiq (A.S.) was one of the most patient and tolerant teachers of his time. He used to take his classes every day. After his lectures he would listen and reply to the objections of his critics. Whenever he could not go to his house because of literary discussions he would have his lunch in the Academy. He would send someone to buy some bread from the market. He would not finish even one bread. He had asked his critics, who attended his classes, not to interrupt him during his lectures. They were quite free to ask him any question or raise any objection after the classes were over.

Usually he would finish his lectures before Zohar (mid-day) prayers. Then he and his students would go home. But whenever there was a discussion going on between him and some of his opponents, he would offer his prayers on the college premises. Some of his students would also return after offering their prayers at home and attend the discussions.

Once Abu Shakir, one of his opponents, said to him: "Would you allow me to say something and ask some questions?"

"Yes, you can", replied Jafar as-Sadiq.

Said Abu Shakir: "Is it not a myth that there is Allah? You want people to believe in a thing which does not exist. If there was Allah, we could have felt his existence through our senses. You may say that we can feel His presence by the help of our inner senses, but our inner senses also depend upon our five outer senses. We cannot conjure up an image of anything in which some of our senses were not involved. We cannot conjure up the picture of a person whom we have not met; recall to our memory his voice if we have not heard him and feel the touch of his hand by our inner senses if we have never taken his hand in our hand.

"You may say that we can perceive the presence of

Allah by our intelligence and not through our inner or outer senses. But our intelligence also needs the assistance of our five outer senses, without which it cannot function. We cannot make any reasoning or come to any conclusion without the help of our senses.

"By your imagination you have created a being, which is of your own image. Since you see, talk, hear, work and rest, He also does exactly what you do.

"You do not show Him to anyone. To maintain your hold on the people you say that He cannot be seen. You also say that He was not born from the womb of a woman. He does not procreate and that He would not die.

"I have heard that there is an idol in India, which is hidden behind a curtain and is not allowed to be seen by the Hindu devotees. The custodians of the idol say that it is out of mercy that their god does not appear before them, because whoever casts his eyes on it, would instantly die.

"Your Allah is also like the veiled god of the Hindus. It is out of His mercy that He does not appear before us. If he does, we shall surely die.

"You say that the universe was created by Allah, who did not talk to anyone, except to the Prophet of Islam. As a matter of fact the universe came by itself. Does anyone create the grass, which grows in the field? Does it not grow and get green by itself? Does anyone create the ants and the mosquitoes? Do they not come out by themselves?

"I must tell you, who claims to be a scholar and the successor of the Prophet, that among all the stories, which circulate among the people, none is more absurd and baseless than the story of Allah, who cannot be seen.

"There are many baseless stories, but they, at least, depict real life and present before us the people and personalities, who may themselves be fictitious, but their acts and deeds are like those of real human beings. We can see them. They eat, they drink, they talk, they sleep and they love. When we read

these fictitious stories, we enjoy them. We know that they are false, but we see in them the faces of men and women, who are like us. The people mentioned in the stories might not have existed, but our common sense accepts existence of such people in the world. However, when we cannot see, feel or touch your Allah, our logic and reasoning, which depend upon our senses, do not accept his existence.

"I know that some people, who have been deceived by you, believe in your invisible Allah, but you cannot deceive me and make me believe in Him. I worship God, who is made of wood and stone. Although my God does not talk, but I can see him with my eyes and touch him with my hands.

"You say that the God whom I have made from my own hands is not worthy of being worshipped, while you ask the people to worship Allah, you have created by your imagination.

"You deceive innocent people by saying that your imaginary Allah has created the universe, but I do not deceive anyone. No one created the universe. There was no need of any god to create it. It came by itself. God cannot create anything. He is himself our creation. I created him by my hand and you by your imagination."

Jafar as-Sadiq (A.S.) did not say a word during the long tirade of Abu Shakir. Sometimes his students, who were present, wanted to intervene but he asked them to remain quiet. When Abu Shakir stopped his lengthy discourse, he asked him, if he had anything more to say.

Retorted Abu Shakir: "By introducing your invisible Allah to the people, you want to acquire wealth and position and have a respectable, comfortable and luxurious life. These are my last words. I do not want to say anything more."

Jafar as-Sadiq (A.S.) said: "I would like to start with the last part of your speech. Your accusations that I want money, position and a comfortable life would have been justified if I was living like a caliph. You have seen today that I have eaten a few morsels of bread only and nothing else. I invite you to my house

to see for yourself what I will have for dinner and how I live.

"Abu Shakir, if I wanted to acquire wealth and have a good life, as you say, I was not obliged to teach and preach to get rich. I would have earned money and got rich by my knowledge of chemistry. Another way to get rich was to do business. I have more knowledge about foreign markets than any merchant in Medina. I know what goods are produced in different countries and where to sell them for profit. I also know how to bring them here to reduce the cost of transport. Our merchants import goods only from Syria, Iraq, Egypt and some other Arab countries. They do not know what goods are available in Isphahan, Rasht and Rome, otherwise they would have imported them and sold them with profit.

"Abu Shakir, you have said that I ask the people to worship Allah to deceive them and to get rich. I must tell you that I have never taken anything from anyone, except some fruits as presents. One of my friends sends to me every year fresh dates from his garden and another some pomegranates from Taif. I accept these presents so that they may not get offended.

"I have heard, O Abu Shakir, that your father was a pearl merchant. Perhaps you may have some knowledge about pearls. But I know all about pearls and precious stones. I can also appraise their market value. If I wanted to get rich I would have worked as a jeweller. Can you test and recognize a precious stone? Do you know how many kinds of rubies and emeralds there are in the world?"

"I know nothing about them", replied Abu Shakir.

"Do you know how many kinds of diamonds there are and what colours they have?", asked Jafar as-Sadiq.

"I do not know", replied Abu Shakir.

Jafar as-Sadiq said: "I am not a jeweller, but I know all about the pearls and precious stones. I also know where they come from. All jewellers must know about gems, what I know, but few of them know their sources."

"Do you know what makes a diamond shine?" asked Jafar as-Sadiq.

"I never was a diamond merchant, nor was my father. How can I know why diamonds shine?", replied Abu Shakir.

Said Jafar as-Sadiq: "Diamonds are obtained from the beds of rivers and streams. Rough diamonds are cut by experts. This is the cut of a diamond, which gives it its brilliance. Those who are experts in cutting diamonds are trained from the childhood in the profession of their fathers and forefathers. Cutting a diamond is a very delicate and difficult art. A diamond is cut only by a diamond.

"Abu Shakir, I have said all this simply to show to you that if I wanted to accumulate wealth, I could have done so by making use of my knowledge about jewels. I have replied to your accusations and now I shall deal with your objections.

"Abu Shakir, you have said that I have fabricated stories and ask the people to worship Allah, who cannot be seen. You refuse to acknowledge existence of Allah, because He cannot be seen. Can you see inside your own body?"

Replied Abu Shakir: "No, I cannot."

Jafar as-Sadiq said: "If you could have seen what is inside you, you would not have said that you do not believe in Allah, who cannot be seen."

Abu Shakir asked: "What is the relationship between seeing within one's own body and the existence of unseen Allah?"

Jafar as-Sadiq (A.S.) replied: "You have said just now that a thing, which cannot be seen, touched, tasted or heard, does not exist."

Abu Shakir said: "Yes, I have said that and I believe it is true."

Jafar as-Sadiq asked: "Do you hear the sound of the movement of blood in your body?"

Said Abu Shakir: "No, I do not. But does blood move in the body?"

Jafar as-Sadiq (A.S.) said: "Yes, it does. It makes a full circuit of your body. If the circulation of blood stops for a few minutes you will die."

Abu Shakir said: "I cannot believe that blood circulates in the body."

Jafar as-Sadiq said: "It is your ignorance, which does not let you believe that your blood circulates in your body, and the same ignorance does not let you believe in the existence of Allah, Who cannot be seen." Then he asked Abu Shakir whether he has seen the tiny living beings, which Allah has created in his body."

Jafar as-Sadiq continued: "It is because of these small creatures and their wonderful work that you are kept alive. They are so small that you cannot see them. Since you are a slave of your senses, you cannot know about their existence. If you increase your knowledge and decrease your ignorance, you will come to know that these small beings in your body are as large in number as the particles of sand in the desert.

"These small creatures are born in your body, multiply in your body, work in your body and die in your body. But you never see them, touch them, taste them or hear them in your life time."

"It is true that one who knows himself knows his Allah. If you had known yourself and had the knowledge of what is going on inside your body, you would not have said that you do not believe in Allah, without seeing Him."

Pointing his finger to a huge stone he said: "Abu Shakir, do you see the stone, which is in the foot of that portico? To you it seems lifeless and motionless, because you do not see the brisk motion, which is inside the stone. Again it is lack of knowledge or your ignorance, which would not let you believe that there is motion inside the stone. The time will come when the learned people would see the motion which is in the stone."

Continued Jafar as-Sadiq (A.S.): "Abu Shakir, you have said that everything in the universe came by itself and has no creator. You think that the grass in the field grows and gets green by itself. You must know that the grass cannot grow without seeds and seeds would not germinate without moisture in the soil and there would be no moisture if no rain falls. The rain does not fall by itself. First the water vapours rise and gather above in the atmosphere in the form of clouds. The winds bring the clouds. Then the water vapours condense and fall down as rain drops. The rain must also fall at the right time, otherwise no grass will grow and become green.

"Take the seeds of ten kinds of herbs and put them in a closed jar, which has sufficient water, but no air. Would they germinate? No, in addition to water, seeds need air also. It is possible to grow grass, herbs and fruits in hot houses, when it is very cold, provided there is sufficient air. Without the presence of air no grass will grow in the fields and get green. If there is no air, all plants and animals, including human beings, would die.

"Abu Shakir, do you see the air, on which your very existence depends. You only feel it when it moves. Can you refuse to believe in the existence of air? Can you deny that to grow and get green the grass needs many things-seeds, soil, water, air, a suitable climate and above all a strong managing power, which may coordinate the action of these different elements. That Managing and Coordinating Power is Allah.

"You say that everything comes by itself, because you are not a scientist. No scientist would ever say that. All scientists and all scholars believe in the existence of a creator, albeit, they may call Him by different names. Even those, who do not believe in Allah, believe in a Creative Force.

"Abu Shakir, it is not because of one's knowledge, but it is due to his ignorance that he does not believe in Allah. When a wise man thinks of himself, he finds that his own body needs a controller so that all its organs and systems may function properly. He then realizes that this vast universe also needs a

controller or supervisor so that it may run smoothly.

"You said just now that both of us create our own gods - you by your hands and I by my imagination. But there is a big difference between your god and my Allah. Your god did not exist before you made him out of wood or stone, but my Allah was there before I could think about Him. I do not create my Allah by my hands or by my brain. What I do is to know Him better and think of His Greatness. When you see a mountain you try to know more about it. It is not creating the mountain by imagination. That mountain was there before you saw it and it would be there when you are gone.

"You cannot know much about the mountain because of your limited knowledge. The more your knowledge grows, the more you will learn about it. It is impossible for you to find out when and how that mountain came into being and when it would disappear. You cannot find out what minerals are there inside or underneath the mountain and what is their benefit to mankind.

"Do you know that the stones, out of which you make your idols came into being thousands of years ago and shall exist for thousands of years more. These stones have come here from a distant place. They could travel that long journey because different parts of the earth are always moving, but this movement is so slow that you do not feel it.

"There is nothing in the universe, which is not in motion. Rest or motionlessness is meaningless. We are not at rest even when we are sleeping. We are in motion because the earth is in motion. Besides, we have a motion inside our own bodies.

"Abu Shakir, if you had any knowledge about the piece of stone, out of which you carve an idol, you would not have denied the existence of Allah and said that I have created Him by my imagination. You do not know what a stone is and how it came into being. Today you can handle it as you like and cut it into any shape or form, but there was a time when it was in liquid state. Gradually it cooled down and Allah solidified it. In the beginning it was quite brittle and would have broken into

pieces in your hand like a piece of glass."

Asked Abu Shakir: "Was it in a liquid condition before?"

"Yes, it was", replied Jafar as-Sadiq (A.S.)

Abu Shakir burst into a peal of laughter. One of the students of Jafar as-Sadiq got angry and was about to say something when he was stopped by his teacher.

Abu Shakir said: "I am laughing because you say that the stones are made of water."

Jafar as-Sadiq (A.S.) replied: "I did not say that the stones are made of water. What I had said was that in the beginning they were in a liquid state."

Abu Shakir said: "What difference does it make. The liquid and water are the same things."

Jafar as-Sadiq replied: "There are many liquids which are not water. Milk and vinegar are liquids, but they are not water, although they have a water content in them. In the beginning the stones were liquid like water and they flowed like water. Gradually they cooled down and became hard so that you could cut them and make them into idols. The same hard stones will turn into liquid, if they are heated."

Said Abu Shakir: "When I go home I will check the truth of your statement. I will put the stone in the fireplace and see if it turns into liquid or not."

Said Jafar as-Sadiq: "You cannot liquify stone in your fireplace. Can you liquify a piece of iron at home? A very high temperature is required to turn solid stone into liquid.

"Do you realize how you could make the idols out of stones? It was Allah, who made the stones. It was He Who created you and gave you the hands with the unique fingers, which enabled you to handle tools and chisel out the idols from the stones. Again it was He who gave you power and intelligence, which you used in making the idols.

"Abu Shakir, do you think that the mountains are only

heaps of stones? The Great Allah has created them to serve some very useful purpose. They were not created so that you may take stones and turn them into idols. Wherever there is a mountain there is flowing water. Rain and snow which fall on the mountain tops produce streams of fresh water. These streams combine together to form big rivers, which irrigate farms and fields. The people who live in the valleys, through which the rivers flow, are assured of constant supply of water.

"People who can afford it, go to the mountains during the summer season to escape the heat of the plains.

"The mountains work as a great bulwark and protect towns and villages, which are in their valleys from the devastation and destruction of hurricanes.

"Green mountains provide good grazing grounds for sheep. When scorching heat burns the pastures down in the plains and no fodder is left, the shepherds take their flocks of sheep to the mountains and stay there till the end of summer.

"Mountains are also habitats of birds and animals, some of which are a good source of food for those, who live there.

"Even the mountains, which are not green, are not without some use. If the people try, they may discover in them mines of metals and minerals which are useful for mankind.

"Abu Shakir, I am too small and too weak to create Allah with my brain. It is He, who has created my brain, so that I may think of Him and know Him - my Creator. He was there before I came into being and He would be there when I am no more. I do not mean that I would be totally destroyed. Nothing in the universe is totally destroyed. Everything is subject to change. It is only Allah, Who does not change.

"Abu Shakir, please tell me sincerely to whom will you turn for help when you are in trouble? Do you hope that the idol you carve out of stone can come to your succour? Can it cure you when you are sick; save you from mishaps and calamities; save you from starvation and help you pay your debts?"

Abu Shakir replied: "I have no such expectations from the stone, but, I think there is something inside the stone, which will help me. Moreover, I cannot help worshipping it."

Jafar as-Sadiq enquired: "What is inside the stone? Is it also stone?"

"I do not know what it is. But it cannot help me if it is also stone," replied Abu Shakir.

Said Jafar as-Sadiq: "Abu Shakir, what is inside the stone and is not stone and can help when you are in trouble is, Allah."

Abu Shakir pondered over the subject for a while and then said: "Is Allah, who cannot be seen, inside the stone?"

Jafar as-Sadiq replied: "He is everywhere."

Abu Shakir said: "I cannot believe that a thing may be everywhere but remain unseen."

Jafar as-Sadiq said: "Do you know that the air is everywhere but cannot be seen?"

Said Abu Shakir: "Although I cannot see the air, I can, at least, feel it when it moves. But I can neither see your Allah nor feel his presence."

Jafar as-Sadiq said: "You do not feel the presence of air when it is not moving. The air is only a creation of Allah. He is everywhere, but you cannot see Him or feel His presence by your senses. You have admitted just now that although you do not see it, but your instinct or your soul tells you that there is something inside the stone, and is not the stone, which can help you. That something is Allah. Your instinct also tells you that you cannot live without Allah and without worshipping Him."

Abu Shakir said: "It is true. I cannot live without worshipping idols."

Said Jafar as-Sadiq: "Do not say idols. Say Allah. It is He, Who is worthy of worship. Just like you everyone is obliged to worship Him. One, who does not worship Allah has no guide and no guardian. He is just like one, who cannot see, cannot

hear, cannot feel and cannot think. He does not know where to go and on whom to depend when in trouble.

"Worshipping Allah is a part of living. Every living being worships Him instinctively. Even the animals cannot live without worshipping Him. We cannot ask them and they cannot tell us that they worship Allah, but their well regulated and orderly life is sufficient proof that they worship Him.

"I do not say that the animals believe in Allah and worship Him just as we do. But there is no doubt that they obey the laws made by their Creator faithfully, which means they worship Him. If they were not obedient to their Creator, they could not have such an orderly and regulated life.

"We see that just before the advent of spring the titmouse (a kind of small bird) always comes at the same time and sings, as if to give us the tidings of the new season. The itinerary of these migratory birds is so regulated and their schedule so fixed that even if the last days of winter are still cold, their arrival is not delayed for more than a few days. When Chilchila (a migratory bird) returns after covering a distance of thousands of miles, it builds its nest at the same place, where it had built it last spring. Was it possible for these small birds to have such a well organized life if they did not obey the laws of Allah and worship Him?

"Abu Shakir, even the plants obey the laws made by Allah faithfully and worship Him. Out of 150 species of plants, which are further divided into hundreds of sub-species you will not find even one plant, which has a disorganized and disorderly life.

"Abu Shakir, just like us the plants also do not see their Creator, but they worship Him by obeying His laws instinctively.

"I know that you will not accept, or perhaps, you do not understand, what I say. A man must have sufficient knowledge to understand complicated problems.

"Abu Shakir, not only animals by their animal instinct and plants by their plant instinct obey Allah and worship Him,

the lifeless and inanimate objects also, with whatever instinct they have, obey Allah and worship Him. If they did not worship Him, they would not have followed the laws made by Him. As a result, their atoms would have broken apart and they would have been destroyed.

"The light which comes from the sun also worships Allah by obeying his laws, which are very stringent and exact. It comes into being by the combination of two opposite forces. These forces also obey the laws of Allah and worship Him, otherwise they cannot produce light.

"Abu Shakir, if there was no Allah there would have been no universe and no you and me. The sentence, 'There is no Allah', is meaningless. The existence of Allah is a must. If attention of Allah is diverted, even for a moment from the affairs of the universe to something else, it would break up. Everything in the universe obeys His laws, which are permanent and eternal. Because of His absolute wisdom and knowledge, He could make such wonderful laws, which will last for ever. Each and every law, made by Him serves some special and useful purpose."

When Jafar as-Sadiq concluded his discourse, Abu Shakir fell into a deep reverie as if he was greatly inspired.

Jafar as-Sadiq asked: "Do you now believe that Allah, who cannot be seen, does exist and what you worship is the unseen Allah?"

Abu Shakir replied: "I am not yet convinced. I am in a quandry. I am full of doubts and misgivings about my faith and my convictions."

Jafar as-Sadiq remarked: "The doubt about idol worship is the beginning of the worship of Allah."

DEATH, A BOON TO MANKIND

Continuing his discourse Jafar as-Sadiq (A.S.) said: "Abu Shakir, one of the laws of Allah is death. Ignorant people think that death does not serve any useful purpose or it is, rather, harmful to human beings. Some people have said that it is an act of cruelty of Allah.

"Death serves a very useful purpose and is essential for the survival of mankind. If there was no death the human race would have become extinct. Scientists, who tried in the past to do away with natural death, were making a big mistake. I would appeal to the future generations of scientists that they should not try to do away with death.

"Although the tyrants and powerful people know that they would die someday and leave everything behind, even then they perpetrate every conceivable crime to accumulate as much wealth as possible. If they knew that they would not die a natural death, and live for ever, if they are not killed, or have a serious accident, they would try to lay their hands on the property of others so that they may lead a comfortable life for ever.

"To protect their interests, the weak would unite and fight against the strong. The group which proves stronger would destroy the other group and take its place. This class struggle and warfare would continue till the human race is totally destroyed.

"If there is no fear of death, there would be no mercy and compassion in the world. Even parents would have no mercy on their weaklings. They love their children and have mercy on them, because they know that they would die and would be remembered by them.

"Abu Shakir, those who believe in Allah and fear Him, know that if they do not carry out His Commands, they would

be punished by Him on Doom's Day. It is only the fear of death, which makes the people fear Allah and worship Him. It is again the fear of death, which reduces cruelty and tyranny in the world, although they could not be totally obliterated. Even those who believe in Allah commit tyrannical acts. If there is no death, the world would be quite different than what it is today.

"If we suppose that nothing would happen and that human beings would live happily and peacefully after the conquest of death, they would multiply so much that every piece of land would be occupied by them and nothing would be left for agriculture and farming. There would be so much shortage of food that the hungry people would first eat all the animals and then start eating one another."

Abu Shakir remarked: "I was surprised to hear what you said about death. What I gather from your tirade is that it is the will of Allah that we should terminate our lives. Therefore, the sooner we do it the better we shall serve His purpose."

Jafar as-Sadiq said: "Committing suicide is against the Commandments of Allah. He has ordered us to preserve our lives and the only way to keep us alive is not to indulge in over eating and drinking. Excessive eating and drinking shortens life. It is for the safety and preservation of life that my grandfather, Prophet Mohammed (SAW), has asked us not to eat too much meat and make our stomachs graveyards of animals."

Abu Shakir asked: "What does it mean?"

Jafar as-Sadiq replied: "It means that we should abstain from eating too much meat."

Abu Shakir said; "Why should I not eat meat? It tastes so good. I cannot give up eating meat."

Jafar as-Sadiq said: "One may die of a sudden death due to eating meat."

Abu Shakir retorted: "It is the first time that I hear from you that we may die suddenly due to eating meat."

Jafar as-Sadiq replied: "I did not say that everyone, who

eats too much meat, would die of sudden death. What I said was that eating too much meat may result in sudden death of some people. There are many people who eat too much meat, but nothing happens to them.

Asked Abu Shakir: "What is sudden death?"

Replied Jafar as-Sadiq: "It is unexpected death. This kind of death comes to a person, who looks quite healthy, but is sick internally. All of a sudden he goes into a coma and dies."

Abu Shakir asked: "Are there some internal diseases?"

Jafar as-Sadiq replied: "Yes, Those who consume a lot of meat and rich food may become sick internally without any clear symptoms of sickness, such as, loss of appetite, body pain or sleeplessness."

Abu Shakir said: "Someone may be killed in a war or in a quarrel, but I do not think anyone can die without falling sick."

Jafar as-Sadiq said: "You are a man, who does not believe in the existence of anything which you do not see with your own eyes. Since you have not seen anyone die of sudden death, you do not accept that a person can die suddenly and unexpectedly. Please note that sudden death may come from sickness of the heart, sickness of the brain or sickness of the blood.

"All three kinds of diseases are caused by thickening (clotting) of the blood, which is due to eating too much meat and rich food. When the blood clots in the brain, in the heart or anywhere in the body, it results in death.

"Arab tribes, who dwell in the desert do not die of sudden death, since they eat meat and rich food very sparingly. Some tribes eat meat only once a year. During the Haj season they go to Mecca, where large number of animals are slaughtered every year. It is only at that time that they eat as much meat as they can. Eating nothing but meat for a few days in a year does not do any harm. When they return to their tents, they eat, as before, milk and dates, if dates are available.

"I do not think you know anyone in the city of Medina, who is hundred years old, but if you go out of the city to the desert you will find many men and women, who are more than hundred years of age. You will be surprised to see that they are quite healthy and have their full set of teeth. Eating too much meat and rich food thickens blood, which makes one old and sends him to the grave before his time."

Abu Shakir asked: "Please let me know what is death?"

Jafar as-Sadiq replied: "Death is cessation of the functions of different parts of the human body, specially stopping of heart beats and breathing."

Abu Shakir asked: "What causes one to die."

Jafar as-Sadiq replied: "One cause of death is sickness, including the internal sickness, which causes sudden death. The other cause of death is old age. Even if a man is healthy he will die some day due to old age. The Greek philosopher, Hippocrates, has said that old age is also a kind of sickness. No one will die when it is known how to treat it and cure it."

Abu Shakir remarked: "But no physician can cure the sickness of old age."

Jafar as-Sadiq added: "I do not think that old age can ever be cured. Allah has created old age and death by His Will and with a great purpose. Whatever Allah has ordained must happen. He has said that everything would die except He, the Creator of Life and Death. Death is the change of matter from one form to another. Nothing in nature remains in one and the same condition forever. Death is for the good of mankind. It is essential for the survival and continuation of the human race. If it was not created by Allah, human beings would have created it themselves."

Abu Shakir said: "I must point out that what you have said about eating of meat, clotting of blood and sudden and unexpected death is quite contrary to what is in the Quran. Your Allah Himself has said in His book that everyone will die exactly at the time, which has been fixed for his death by Him, and that

no one would die even one hour before or after the appointed time."

Jafar as-Sadiq replied: "I must correct you. What I have said is that some people, not all, who eat too much meat may die suddenly and unexpectedly. You are again wrong in your judgement. There is no contradiction in what I have said and what is in the Quran. Each of us has a term of life, which is predetermined by Allah. We shall die at the expiry of that period. Not even one hour before or after that time. That is the natural death of a person. But there is another kind of death, which a man brings upon himself. It is called suicide. Someone may cut his jugular vein by his own hand and die before his time. This has nothing to do with his natural death, which is mentioned in the Quran. Eating too much meat and rich food and thus shortening the span of one's natural life, which has been given to him by Allah, is also committing suicide. I know what is in the Quran. I would not say a word, which is contrary to what Allah has said in his Holy Book."

JAFAR AS-SADIQ (A.S.) AND JABER IBN HAYYAN

Jafar as-Sadiq (A.S.) was the first Muslim scholar, who encouraged debates and discussions on different subjects between himself and his students and among students themselves. During later periods this became a normal practice in all Muslim schools particularly in the educational institutions of the Shias.

Jaber ibn Hayyan was one of his students, who used to have long discussions with his teacher. One day, in the course of teaching philosophy, Jafar as-Sadiq said that everything in the universe is in motion. If there was no motion the shape of things would be quite different from what it is today.

Jaber asked: "Are you sure that everything in the universe is in motion?"

"Yes, I am sure" replied Jafar as-Sadiq.

Jaber asked: "Does the sound have motion?"

Jafar as-Sadiq replied: "Yes, it has. But the speed of sound is slower than the speed of light. You see from a distance the sledge of an ironsmith falling on his anvil first and hear the sound afterwards. It is because the light waves, which travel faster, reach your eyes first and then the slow moving sound waves afterwards."

Jaber asked: "Can you tell me the speed of sound?"

Jafar as-Sadiq replied: "Archimedes, the Greek philosopher, who measured the speed of sound, has said that if a man is 400 zira (one zira = 40 inches) away from the source of sound, he would hear it after 8 seconds. The greater the distance, the longer it will take to reach him."

Jaber said: "According to the theory of Archimedes it

would take thousands of years for the prophets to hear the voice of Allah, who is on the other side of the 7th sky."

Jafar as-Sadiq replied: "O Jaber, it has been said that He is beyond the 7th sky only to impress upon the common people the greatness of Allah, otherwise, He is everywhere. When he wanted to talk to any of His prophets, He was so near that his voice was heard immediately and clearly.

"Even if He was beyond the 7th sky His prophets would have heard Him immediately, since His voice is not like the voice of his creatures. Allah, who created the universe only by saying "Let it be" had no problem in communicating with His Prophets.

Jaber asked: "Was the universe created in an instant? It is said that it was created in 6 days."

Jafar as-Sadiq replied: "The universe was created, but was transformed into its present form in a very long time. In the beginning it was certainly not as it is today. The six days of Allah, mentioned in the Quran, are not like our six days. The universe came into its present form in six stages or six periods."

Jaber asked: "Can you tell me how long is one day of Allah?"

Jafar as-Sadiq replied: "I will not say something which I do not know myself. If I knew more about Allah than I know, I would have told you how long is His day. I can only say that it is very long."

Jaber asked: "When you say that Allah is everywhere, it means that He is in everything. Therefore, those, who say that Allah and His creations are one, are correct. In other words, if we believe that He is in everything, we must admit that every plant, animal, stone and star is Allah."

Jafar as-Sadiq replied: "You are wrong. Allah is in the plants, animals, stones and stars, but they are not Allah. Just as the oil and the wick are in the lamp to produce light, but they are not the lamp. Allah was in everything to create it and He is

in everything to protect it and preserve it. However, the things which have been created cannot claim to be the Creator. Those who believe in the unity of the Creator and creation are deceived by their own false logic.

"It is a great fallacy to say that because Allah is in everything, therefore everything is Allah. If it is true that everything is Allah, then everything must have the power of Allah. Has anything in the whole world the power of Allah? Can those who believe that everything is Allah produce only by saying, "Let it be" even one grain of sand or create from a drop of liquid a human being? Has anyone, who believed in the Unity of the Creator and creation and claimed to be Allah, ever demonstrated that he had the powers and attributes of Allah?"

"Allah is everywhere and He is in everything, but every place and everything is not Allah. All of them are His creations. His presence is in every place and in everything, because He is their Creator and their Protector.

"He has created eternal motion, which is essential for the survival and existence of all animate and inanimate objects. Nothing can exist without eternal motion but no one can say that eternal motion itself is Allah.

"Once a Greek philosopher said that eternal motion was God. He was wrong. He thought that eternal motion was itself the Creator of everything. As a matter of fact it is the power or the force, which creates motion, and it is again the power, which keeps the motion in existence. If there is no power or force there would be no motion. The motion may be the creator of everything, but it is the power of Allah, which created motion itself and it is His power, which keeps it in existence.

"A Unitarian may accept that eternal motion can bring things into being. This belief is not against the principles of Monotheism. Allah is the Creator of causes, means or instruments, which bring other things into being in the universe. One of them is eternal motion.

"Some Greek philosophers have said that motion is a

form of matter and matter is a kind of motion. Without motion there would be no matter and if motion stops, the matter would be destroyed. Some of them considered human thoughts also as an off-shoot of matter. They said that there can be no thought without matter, just as there can be no fragrance without flowers. If the matter is destroyed there would be no thoughts at all.

"O Jaber, by saying that everything would be destroyed, they contradict themselves. The same philosophers had said before and it is also believed today that nothing is destroyed in the universe. Everything changes its form. Human beings are also not totally destroyed after their death. They only change their form. Just like them, their thoughts also change the form. What remains of a person unchanged is his soul, which represents his moral and spiritual qualities.

"O Jaber, a believer goes into rapture, when he realizes that the principles of his faith are perfect and infallible and are based upon truth and reality. It is human nature that one gets delighted whenever he sees something flawless, systematic and well arranged.

"O Jaber, do you see the drawing on the wall? It is a well drawn beautiful geometrical figure. You get a sort of pleasure when you look at it. Not because you have the knowledge of mathematics and know what kind of figure it is, but because it is well drawn, perfect and flawless. Even children will be delighted when they see it. The basic principles of Islām are in the same category. They are based upon truth and reality."

Jaber said: "Common people do not understand the truth of our religious principles and doctrines and do not know that they are perfect. That is why I persuade them to educate themselves and increase their knowledge. Was it not better if it was also explained in simple terms as to why we should believe in them and follow them?"

Jafar as-Sadiq replied: "Scientists and philosophers have to prove their theories by reason and logic so that they may be accepted by other scientists and philosophers. They are not

concerned with common people, who cannot and will not understand them. Religion is different from science and philosophy.

*Canons and doctrines of our religion as well as of all other religions, which came before Islam, were communicated in simple terms so that they could be understood easily by everyone, but it was not explained why they were sent. Allah had chosen our Prophet to spread Islam among all the people of the world. It was not sent for the intellectuals only, who would not have accepted anything, which was not proved by logic and reason.

"Our Prophet expressed the canons and doctrines of our religion in very simple terms so that they could be understood by all, but he did not give the reasons as to why they were being imposed, which the common people could not understand and cannot understand even today. The doctrines of Islam are, primarily, for the belief of the people and not for their brains. Those, who have a brain can find out for themselves why they are formulated. Development of the brain depends upon acquisition of knowledge. Therefore, those who wish to know and understand the reasons would acquire knowledge and develop their brain. But those who cannot, should believe in them and follow them faithfully. It is sufficient for their salvation.

"It requires strong determination, perseverance and hard work to acquire sufficient knowledge in order to find out the purpose as well as the need for following the rules and doctrines of Islam. Common people cannot afford to do that. They have to work, earn their living and support their families. Therefore, it is better for them to engage themselves in trade, agriculture and cattle and camel farming and learn only the fundamental and secondary rules of Islam.

"Your concept of heaven and hell is quite different from that of an illiterate person. If you try to explain to him what you understand by these terms, you will confuse him and make his faith shaky. This is why it has been said to talk to people according to their intelligence. Since the holy Quran was for the

whole of mankind, it was sent in very simple Arabic, so that everyone may understand it without the help of others. It was possible for the common people to misunderstand the meaning of the verses of the Quran if they were not read correctly. To eliminate that risk my grandfather, Ali ibn Abi Talib (A.S.), invented Arabic grammar."

Jaber remarked: "It is a pity that many people do not know and understand the purpose, need and necessity of the canons and doctrines of Islam, and deeper meaning of the verses of Quran, otherwise the religion of Allah would have made great progress."

Jafar as-Sadiq said: "It has been with every other religion, which came before Islam. Only a limited number of people understood quite well the laws of their religion and the reason why they were made. Therefore, they became the leaders of the people and the rest had to follow them. The religion of Islam is not an exception. Only a handful of people know the Quran and the laws of Islam. They are the leaders of the Muslims. This state of affairs will continue till knowledge becomes universal."

Jaber asked: "Will the time come when knowledge will become universal?"

Jafar as-Sadiq replied: "Yes, the time will come when human beings will know the importance of education and realize that it is the duty of every individual to acquire knowledge. At that time sufficient facilities would be made available for that purpose."

Jaber said: "Then everyone will become a scholar."

Jafar as-Sadiq replied: "Even at that time and in spite of the facilities, all people will not become educated, since everyone does not have the same aptitude for learning. However, they would not be like the illiterate people of today. Every person will have some knowledge and power of understanding. The learned people would, therefore, be able to explain to those, who wished to know, the truth and rationale of the

principles of Islam."

Jaber asked: "What is the most powerful force and strongest desire in the life of a man?"

Jafar as-Sadiq replied: "The strongest desire in a man's life is to live and to protect his life."

Jaber asked: "Does one's desire to live spring from his knowledge?"

Jafar as-Sadiq replied: "No, even the most illiterate and ignorant persons have the will to live. The desire to remain alive springs from life itself. Many people do not know that they have a strong desire to live. Whatever you see in the life of human beings in the world is due to the desire to live.

"It is due to our keen desire to live that we try to defend ourselves from our enemies if we can, or run away if we cannot. Strong desire to keep alive has created in us the desire to eat and drink. So long as we are healthy and normal our desire to eat and drink remains strong.

"It is because of our desire to live that we work and earn our living, we take care of our personal hygiene and we build a house for our wife and children. The desire to live never disappears and never departs from us. It is only when one loses the desire to live that he commits suicide."

Jaber asked: "Is it a fact, as some people have said, that a genius is just like a lunatic?"

Jafar as-Sadiq replied: "This view is attributed to Plato, which is wrong. What he said was that if someone was not, more or less, lunatic, he would not compose poetry. It was his belief that no one, including the poet himself, got any benefit from poetry. Therefore, to indulge in such a useless pursuit was, in his opinion, tantamount to lunacy. Since a great poet was considered by the common people as a genius, many Greek scholars, in later periods, said that a genius was a lunatic or like a lunatic.

"It is not correct. A genius is not a lunatic or like a lunatic.

He has extraordinary mental capacity and all his actions are normal and are approved by wise people. A lunatic, on the other hand, does not have a sound and balanced mind and his behaviour is not normal and most of his actions are not approved by wise people. I think the idea that a genius is a lunatic or just like a lunatic originated in Greece, because the people, who were geniuses were so much preoccupied and engrossed in higher matters that they totally neglected the things, which were directly concerned with their daily lives.

"The people, who thought that a genius was a lunatic, were just like those, who were born in a dark dungeon and had always lived there. They had not seen the sun, moon, stars and the blue sky and knew nothing about the world, which was outside their dark abode. Their eyes had become used to seeing in the dark only and could not stand the glare of sunlight. But they thought they were wise and normal. When the people, who were outside, told the dwellers of the dungeons that the sky was blue, the stars were bright, the grass was green, the roses were red and the birds were beautiful, they thought that they were mad.

"When Plato said that a poet was like a lunatic, he himself behaved like a dweller of the dungeon. He thought that whatever a man said or did should have some material benefit for himself or for others. He was a great philosopher, but he failed to realize that poetry has great moral and spiritual values.

"The beautiful verses of a great and inspired poet are highly exhilarating and create, in the readers as well as the listeners, a great sense of happiness and joy. I do not understand why Plato condemned poets and poetry? Did he live or could he live without appreciating and enjoying beautiful things, created by the good taste of talented people?

"Does not appreciation of beautiful things, created by Allah, purify our souls? A poet can describe them in his verses more precisely and effectively than a scientist in his theories. We cannot express many things in scientific or philosophical terms. It is not possible to recite Rajz (verses of challenge for

combat) in scientific formulas. Similarly the beauty of flowers cannot be described in the theorems of logic. Part of the verses written by my grandfather, Ali ibn Abi Talib, (A.S.), are on philosophical subjects. He has written beautiful verses in praise of knowledge, morality, piety and self denial, etc.

"Science is the demonstration of the power of logic and reason of human beings, while poetry is a manifestation of their feelings and sentiments. Science is like the iron axe of a carpenter with which he splits wood to make useful things and poetry is like the fan of soft feathers, which produces a refreshing breeze and keeps us cool."

Jaber asked: "Why is there so much difference between human beings and inorganic substances and why are they (human beings) more like animals and plants than inanimate objects?"

Jafar as-Sadiq replied: "There is a difference between inorganic substances and human beings because they (inorganic substances) follow some fixed and unchanging laws, while humans do not. That is why, they are always and everywhere, more or less, alike, but human beings differ from one another. Every person differs from the other in intelligence, aptitude, aspirations, taste, skills, and so on. Another important cause of differences between the two is that inorganic substances have no desires as humans have.

"Since inorganic substances follow some fixed laws, there are few differences in the properties of a substance from one place to another and it is possible to predict what changes it would undergo in future. But in the case of human beings such predictions are impossible. There are so many factors which affect the life of a person and influence his decisions that he himself does not know what will happen to him in future and what he would have to do next.

"Plants and animals are like human beings, because they are also governed by changing laws. They follow some fixed laws also, but so do the humans. Although human beings have some common desires, such as the desire to eat, drink,

sleep and have a mate, yet there are so many differences among them that they have split into many groups and denominations and fight each other.

"The prophets, who were sent by Allah from time to time, advised people to follow the laws made by their Lord so that they may have some common thoughts and actions. It was, no doubt, a very strong cementing force. Muslims are not united simply because they do not follow the laws of Islam sincerely, although they worship the same Allah, offer their prayers towards the same Kaaba five times a day and fast in the same month of Ramadhan."

Jaber said: "Since you have mentioned the name of Kaaba, please let me know why the Prophet of Islam, may Allah bless him and his progeny, changed the Qibla of the Muslims and asked them to turn towards the Kaaba, while offering their prayers?"

Jafar as-Sadiq replied: "He did it by the Command of Allah."

Jaber asked: "Why did Allah change the Qibla of the Muslims. Does He not have absolute knowledge? When He knew what would happen in future, he should have given an order, which was not to be changed at all. We change our minds and alter our decisions because of our ignorance. We do something today and after some time we realize that we were wrong. We learn by experience and change our course of action. But Allah, Who is All-Knowing, does not make mistakes and learn by experience."

Jafar as-Sadiq replied: "In your argument you have taken into account only the knowledge of Allah and His Commands and have totally ignored the facts that those orders were issued for human beings, who were subject to constant change. They were not for the unchanging inorganic substances. That is why the orders and commands of Allah which were given to the Prophet of Islam were different from those, which were given to Prophet Moses.

"Definitely Allah is All-Knowing. He knows what would happen in the future. Since the circumstances and requirements of Muslims changed from time to time, He issued orders which were most appropriate at a particular time and under the prevailing circumstances.

"Allah knew from the very beginning that He would first ask Muslims to turn towards Jerusalem, when offering their prayers and then order them to turn towards the Kaaba. What seems to you as a change of decision was no change at all. To elaborate my point I would like to give two examples: If the fly which is born in the middle of spring stays alive till the winter season and faces the severity of cold weather, it would think that the world has gone topsy turvy, although there was no change in the laws of the world. Suppose you appoint someone for one year only to manage your property, but you do not tell him that his job was for one year. When he is removed from his post after one year he would think that you have changed your mind, which is not correct. You had appointed him for one year only.

"The Commands of Allah, which seem to be changing are in the same category. He had decided from the very beginning to change the Qibla of Muslims from Jerusalem to the Kaaba, but orders were issued at the appropriate time. He does not change His mind or His decisions."

Jaber said: "One point has been clarified, but another is still haunting my mind. Please tell me why Allah first ordered Muslims to turn towards Jerusalem during their prayers and then asked them to turn towards the Kaaba?"

Jafar as-Sadiq replied: "In the beginning Muslims were weak and small in number and Jews and Christians were very strong and their number was large. They could have destroyed Muslims if they had also become hostile to them. It was only to pacify them that Muslims were asked to turn towards Jerusalem, which was held in high esteem by the two communities. This had the desired effect. In the beginning Jews and Christians were friendly to the Muslims. But when they turned from

Jerusalem to Kaaba the Jews became hostile to them.

"All inhabitants of the Arabian Peninsula, except the Jews and Christians, were idol worshippers. They had their idols in the Kaaba, which was considered by them to be a very sacred place. They used to go there for pilgrimage and worship their idols. When the Arabs, who were converted to Islam, received orders to turn towards Kaaba they were jubilant and more than happy to comply. It was actually the fulfilment of their hearts' desire."

Jaber said: "But the Kaaba was not a holy place for the non-Arabs, who became converts to Islam."

Jafar as-Sadiq replied: "When, by the orders of Allah, the Prophet of Islam, may Allah bless him and his progeny declared the Kaaba as the qibla of the Muslims, non-Arabs, who became converts to Islam, had a feeling of respect and reverence for it. They turned willingly towards it during their prayers and, thus, the Kaaba became a great spiritual centre, which had no parallel in the past.

Jaber asked: "What is more important-Kaaba as the qibla of Muslims or Kaaba as a place of pilgrimage and Haj?"

Jafar as-Sadiq replied: "Kaaba is more important as the qibla and the spiritual centre of Muslims. A large number of Muslims, for one reason or the other, cannot go there, but all of them turn towards it during their prayers five times a day and their calls of Allahu Akbar resound in the Kaaba.

"No religion in the world ever had nor ever will have such a unique spiritual centre as the Kaaba, which is the qibla of the Muslims."

Jaber asked: "Why do some people commit suicide?"

Jafar as-Sadiq said: "Those who commit suicide have no strong religious convictions. A religious person would never commit suicide.

"I have said before that every living being has a strong desire to stay alive. The desire to live becomes weak in some,

who are not religious, due to one of the following reasons:

1. Laziness - A lazy person does not work and faces disappointments. When a man finds himself helpless he commits suicide. O Jaber, man is lazy by nature and does not want to work. This is the beauty of Islam that it does not let a Muslim become lazy. Early morning sleep is sweet, but his religious duty forces a Muslim to get up before sunrise and offer his prayers. This is an antidote to laziness. After morning prayers he starts his daily work. In the same way other prayers also do not let him become lazy.
2. Gambling-When a man loses his fortune in a short period of time, he becomes desperate and commits suicide. This is one of the reasons that gambling is forbidden in Islam.
3. Insanity - In many cases it is genetic. Ancestors of the persons, who suffer from genetic insanity must have been alcoholics. This kind of insanity is not among Muslims. Since they do not drink alcohol, their children do not suffer from genetic insanity. Children of those persons, who take liquor may suffer from two kinds of chronic diseases - genetic insanity and Parkinson's disease. You will find these diseases very common in the countries where alcoholic drinks are popular. Genetic insanity, which is inherited from alcoholic ancestors, weakens the will to live. A person gets so sick that he becomes hostile to himself. He thinks that he does not deserve to live any longer and commits suicide.
4. Another cause of suicide is constant failure in life. But those who have strong faith in Allah and trust in his help and guidance never give up hope and kill themselves."

Jaber said: "I have heard from some Indian merchants, who came to Jeddah, that Hindus have three gods. Do you

know their names.

Jafar as-Sadiq replied: "Yes, their names in Hindi language are Brahma, Vishnu and Shiva."

Jaber said: "I wonder why they worship three gods instead of one God."

Jafar as-Sadiq replied: "Since they did not believe in the words of One and the only Allah, they created three gods by their own imagination and worship them.

"They believe that Brahma created the universe from his own self. When the universe came into being, another god, Vishnu became its guardian. The third god, Shiva, is engaged in the work of destruction. Vishnu, the guardian of the universe, is powerless and cannot stop Shiva from his work of destruction."

Jaber asked: "Why did the Indians create Vishnu when he cannot save anything? Only two gods were enough."

Jafar as-Sadiq replied: "They felt the need of a god, who could keep and preserve the universe. The three gods are always at war. Shiva tries to destroy what is created by Brahma and Vishnu tries to save it, but is defeated by Shiva, who carries on his work of death and destruction. The Indians thought that there should be a third god between Brahma and Shiva so that there may be no direct confrontation between the two gods, who would have destroyed each other. In that event nothing would have been created and nothing destroyed."

Jaber said; "I am proud of being a Muslim. We do not have such problems as Hindus have."

Jafar as-Sadiq added: "We believe that the Creator and Preserver of the Universe is one and the same Allah. He has created everything and by His Command we shall die. But we will not be totally destroyed. We shall be brought back to life again."

Jaber asked: "What was the belief of Aristotle about death?"

Jafar as-Sadiq replied: "Like the people of ancient Greece he also believed that death was not the end of life. It was one of the stages of long life of human beings. That is why they painted on the coffins symbolic figures, such as marriage parties, dancers and hunters etc. to show that the person inside the chest was not dead. However, the thought of death was always haunting their minds.

"The Greek philosopher, Aristarchus of Samos, has expressed his thoughts about death in the following words:

"I am always thinking as to what has happened to hundreds of thousands of people who lived before me? Where have they gone? Why have none of them returned? Why can we not see them and hear their voices? Why is it my good fortune that I am alive and have enjoyments of life? Will I also die like them and be deprived of the good and lively things of life? Is it possible that I may not die and live for ever? I hope I will not die, because I love life so much. Perhaps those who died were not so much attached to life as I am. Although I think that I am an exception and hope I shall continue to live but sometimes the thought flashes to my mind that what would happen to me if I die? Will I continue to have the pleasures of life after my death? Will I eat tasty food and hear the sweet sound of music? I am afraid that I may become like the chicken which I had for my dinner today or the lamb, which was slaughtered, cooked and served on the table to my friends yesterday and may not come back to life. But I think again that I am not a chicken nor a lamb. They were animals and I am a human being. I have a right to live after my death, because I have knowledge and intelligence. If I was not going to live after my death the thought of eternal life would not have come to my mind.

"I do not like to forget myself after my death. I wish I would know myself and realize that I have been deprived of the pleasures and enjoyments, which I had in my

previous life. Sometimes I think that I am just like the yellow leaf of a tree which falls in autumn and turns into dust. But I hear a voice which tells me that I am not like the yellow leaf of the autumn. I feel the passage of time, while the leaves of a tree do not.

"I think that time is just like a river which is always flowing and I am like a block of stone. When the water comes to me, it does not stop, but only slows down a little and then it rushes on. This is the present time. This is my life.

"The upper stream from where the water comes is the past and the lower stream, to which it flows away is the future and I, who confront the flow of water, am the present. When the water reaches where I am and touches me it is changed to time which is my life. I am not interested in the past, as I cannot make use of it. I am also not interested in the future, which is beyond my reach. I am interested in the present time, which is my life. Whenever I feel I am alive it is the present time. The past is like the bird which has flown away from the cage and the future is like the bird which is flying in the air. I may not be able to catch it and put it in the cage. It is only the present time which is in my control. I am its master. I can make use of it as I like. It is the present time in which I am living and breathing.

"I wonder why some people count the past as a part of their lives. The time which is gone is not theirs. The future is not dependable. It has not come yet. It is just like the wealth which has not been acquired. It does not belong to anyone. Life is nothing, but the present time. If someone wants to make use of his life, he must utilize the present time.

"Yesterday, meaning the past, has no meaning at all. Similarly tomorrow, meaning the future, has no meaning. It is only today, the present time, which means so much to us. If, by chance, we could get hold of the future, it

becomes the present time and our lives.

"When I was young I did not understand what Democritus meant when he said that he, his father, and his son, were born at the same time, which was the present time. Today I accept what he had said. I believe that not only the father, the son and the grandson were born in the present time, but the whole world was born in the present time and at the same time. I am afraid to lose the present time, which is my life.

"Is not death like our sleep? Why I am not afraid to go to sleep, but I am afraid to die. After all when I am asleep, I forget about myself. I do not know that it is me who is sleeping. This thought also does not remove the fear of death from my mind, because I know that I shall wake up after the sleep, but I will not get up after my death.

"The death is an endless sleep, in which all the organs of the body are destroyed. If I know that my body which I love so much, will be safe after my death just as it is in my sleep I will face death without fear.

"Egyptians know how to preserve the human body after the death, but we do not. Even if we learn the art, our gods will not approve of saving our bodies after our death, since it was invented by the god of strangers. The custom of the foreigners should not be adopted by us and spread among our people.

"Sometimes I think that I should go to Egypt in my old age and die there and let Egyptians preserve my body, so that when I get up from my long sleep I may find it safe. But I think again why should I die in a foreign country and let my body be treated in a way which is not approved by our gods. It would be a treachery to our faith and to our mother land.

"If my gods assure me that after my death I shall know myself and know that I am the same person, who spent his whole life in studying the stars and their movements,

I shall be so excited that I will go dancing to the grave.

"We enjoy drinking, dancing and eating because we know that the days of our lives are short. There is nothing better than an eternal life. But if I do not know that it is me, who has attained the eternal life, it is not for me. It is for someone else. The gods live on Mount Olympus and enjoy eternal life. Does it concern me? I do not like to become a god of Olympus, if I forget myself and all about my present life."

Continuing his dialogue Jafar as-Sadiq said; "O Jaber, since the Greek philosophers were not Muslims and did not believe in resurrection, they were not sure that they would come back to life and even if they did, they would know themselves. But a Muslim has no such fears. He knows that he would rise at the time appointed by Allah and when he comes back to life, he would not only know himself, but he would give an account of his past deeds. If he was a good and virtuous man he would be rewarded, otherwise he would be punished."

Jaber said: "The Muslims are fortunate. Their religion has informed them in advance about their destiny after their death. Have other religions also enlightened their followers about their fate?"

Jafar as-Sadiq replied: "All religions, which were sent by Allah through his Prophets before Islam, did inform their followers about their destiny after their death, but in no religion is reward and punishment so clearly mentioned and defined as in Islam. In some of them they are quite vague and incomprehensible."

Jaber asked: "Then why there is so much fear of death?"

Jafar as-Sadiq replied: "There is not so much fear of death as the fear of punishment after death. A true Muslim who has not led a sinful life is not afraid of death. He would respond to the call of his Creator willingly and give up his ghost gladly."

Jaber said: "In spite of what you say everyone seems to be afraid of death."

Jafar as-Sadiq replied: "Most people do not think or care much about death. It is really fearful and frightening to those, who know the time of their death in advance, e.g. a murderer, who has been condemned to death by the Qazi and is to be executed on a certain date. Allah is merciful. He has decreed that everyone should die, but it is He, who knows the time of death and not the person who is to die. Death is a kind of debt which all of us must pay back but no one knows when the demand for repayment will come. Everyone thinks that it will be made after a long time. That is why we continue to pursue our normal activities day and night without fear of death.

"Some people, who are totally unconcerned about death, become so greedy that they do nothing but acquire and accumulate wealth by whatever means they can, as if they have attained eternal life and shall remain here for ever.

"It is the wise planning of Allah that he did not let us know the time of our death, otherwise we would have always lived in a state of anxiety and mental agitation. No one would have engaged himself in any useful and profitable pursuit and the fabric of society would have been destroyed.

Jaber asked: "Why did Allah create man and then make him die and disappear?"

Jafar as-Sadiq replied: "Death is only a change of form. A true and well informed Muslim would never be afraid of this change. He knows that he would be brought back to life after his death. If a non-Muslim asks me the same question, I would tell him that death is a window through which a man must pass to get a new lease of life."

Jaber said: "Could you please explain and elucidate this point?"

Asked Jafar as-Sadiq: "O Jaber, were you alive and fed properly when you were in the womb of your mother?"

Jaber replied: "Yes, I was."

Asked Jafar as-Sadiq: "Were you at that time a small, but complete human being?"

Replied Jaber: "Yes, I was a full fledged human being when I came out of the womb of my mother."

Asked Jafar as-Sadiq: "Did you think of death at that time?"

"I do not know" replied Jaber.

Asked Jafar as-Sadiq: "Did you have any hopes, fears, desires or pastimes at that time?"

"I do not know what the state of my mind was at that time" replied Jaber.

Jafar as-Sadiq said: "Could you please tell me which was the better place for you to live in at that time-the womb of your mother or the world in which you are today?"

Jaber replied: "I cannot say. I lived in the womb of my mother for a short time only."

Jafar as-Sadiq remarked: "Perhaps the short period of 9 months might have seemed ages to you. All people under all circumstances do not measure time with the same yardstick. Sometimes days and weeks pass away quickly and at another, one hour drags on and seems to have no end."

"You may not remember anything about your life in the womb of your mother, but at that time you might have been thinking that the womb was the best, safest and the most comfortable place to live in. You wanted to stay there permanently, but were brought forcibly out against your will. That is why you came out crying. Was it not a kind of death to you? Is not this world a better place than the womb of your mother?"

Jaber said: "Although I remember nothing about my previous life, I admit that my present life is much better than what it must have been before."

Jafar as-Sadiq said: "Is it not an indication that your life in the other world would be much better than what it is today?"

Jaber remarked: "But it is not an assurance that the life

in the other world would be better than our present life."

Jafar as-Sadiq said: "There is no doubt that those who believe in Allah and carry out His commands would go to a better place. He has made that promise clearly and unequivocally. He is honest, just and truthful and is free from malice and hatred. He would not break His promise and send his good and submissive servants from a better place to a worse one. It is but logical that good and virtuous people should go to a better place after their death, if the destiny of man is gradual perfection."

Jaber said: "I gather from what you say that we shall definitely know ourselves after our death."

Jafar as-Sadiq replied: "It is the faith of every Muslim that he would be brought back to life, when Allah wills, and would know himself. Islam, more than any other religion, has assured its followers of life after death. The followers of some religions are not so sure as we are. They have hopes and fears, like Aristarchuse, the Greek philosopher. Some of them believe that they would live in the other world in a state of stupor and would not know themselves and forget everything about this life.

"Islam has removed all such doubts and misgivings from the minds of Muslims. They have been assured that they would remember all the events of this life and live there as they used to live in this world. They would eat, drink, sleep and have all other enjoyments of their worldly lives."

Continuing his discourse, Jafar as-Sadiq said: "An unbeliever is afraid of death because he does not believe in resurrection or does not believe in it as a Muslim does."

Jaber remarked: "Perhaps he is afraid of death because he thinks that he would lose all the pleasures and enjoyments of life."

"Exactly", said Jafar as-Sadiq, "he is afraid because he does not know what would happen to him after his death. But a Muslim is not afraid of death. He is sure of a better future and knows that unlimited pleasures and enjoyments await him in the other world.

"To explain to you and to convince you that the human soul has an independent existence I would like to ask some questions. My first question is whether you have ever fainted?"

Jaber waited for a while and then replied: "No, I have never fainted."

Jafar as-Sadiq: "Do you have dreams?"

Jaber: "Yes, I do, and many times."

Jafar as-Sadiq: "Do you go from place to place in your dreams?"

Jaber: "Yes, I do."

Jafar as-Sadiq: "How do you go from place to place when you are sleeping on your bed and are not walking?"

Jaber: "I think it is my soul which goes from place to place when I am sleeping."

Jafar as-Sadiq: "Are you sure that your soul travels, when you are sleeping?"

Jaber: "I am sure."

Jafar as-Sadiq: "Does your soul, which travels, separate from your body when you are sleeping?"

Jaber: "Yes, it does."

Jafar as-Sadiq: "Does the soul, which separates from you body, eat and drink in the dreams?"

Jaber: "Yes, it does."

Jafar as-Sadiq: "Does the soul eat and drink with your mouth or has it a mouth of its own?"

Jaber: "My mouth does not move while I am sleeping and the soul has no mouth."

Jafar as-Sadiq: "Do you relish and enjoy the taste of food and drink in the dreams?"

Jaber: "Yes, I do."

Jafar as-Sadiq: "Your soul walks without legs, hears without ears, sees without eyes and eats and drinks without a mouth. Does it not prove that it is an independent entity and does not need a body for its existence?"

Jaber: "But, I cannot have a dream without a body. This shows that the existence of my soul depends upon the existence of my body."

Jafar as-Sadiq: "It is true that you cannot have a dream without the body, but it does not prove that your soul has no independent existence."

Jaber said: "No, it does not prove that."

Jafar as-Sadiq asked: "Do you believe that whatever has come into existence will continue to exist?"

Jaber replied: "Yes, I accept that."

Jafar as-Sadiq said: "When your shadow which falls upon the ground, continues to exist after the setting of the sun, how can your soul cease to exist after your death? It shall continue to live, which means you shall continue to live after your death and know yourself."

Jaber asked: "Why Allah keeps us in the wombs of our mothers for nine months and in this world for sometime and then sends us to a better place to live in. Was it not better if we were sent to that place from the very beginning without passing through different stages of life and tasting the bitterness of death?"

Jafar as-Sadiq replied: "You are a Muslim and know that Adam was thrown out of paradise and sent to this earth for following the advice of Satan and disobeying Allah. When he came here, his children have to go through all the stages of life on the earth. They have to stay in the wombs of their mothers and then, for sometime, on the surface of this planet. This is a period of trials and tribulations. If they obey the Commands of Allah, they would return to paradise, which they had lost. However, if they obey the devil they would go to hell."

"Jews and Christians also believe that man was sent from paradise to the earth so that he may be purified by passing through different stages of life and become suitable for returning to paradise."

Jaber asked: "Could you please tell me why Allah has created Man?"

Jafar as-Sadiq replied: "We, the Muslims believe that Allah created Man so that he may know himself and his Creator. In other words, when we realize what talented and wonderful creatures we are, we would realize the Greatness of our Creator."

Asked Jaber: "How would you explain to a non-Muslim the purpose of Allah for creating human beings?"

Replied Jafar as-Sadiq: "It is my firm belief that it was out of His benevolence and magnanimity that He created not only human beings, but the whole universe and made Himself known to them. That is why, I believe, every animate and inanimate object knows his Creator. I cannot think of any other purpose or reason for the creation of the universe. To me Allah has no spiritual or physical needs or desires, which might have obliged Him to do what He did. However, I must admit that I am a human being and my knowledge is limited. What I have said is from my own mind and my own knowledge. I do not claim to have the knowledge of what was in the mind of Allah when He created man and the universe. He might have some other reason or purpose, which I do not know."

Jaber said: "Allah might have created the universe to enjoy the sight and to have pleasure, just as we plant trees and grow flowers for the sake of pleasure and enjoyment."

Jafar as-Sadiq replied: "Most of our pleasures and enjoyments are connected directly with our body. If our body did not need nourishment we would not have taste buds and enjoy food. Similarly if our body had no need of water, we would not feel thirsty and enjoy the taste of water. Beautiful scenery is pleasing to the sense of sight as well as to our soul.

But the soul can have no pleasure without eyes. Acquiring knowledge is exhilarating to the soul. But without eyes, ears, hands and the brain we cannot acquire knowledge and please the soul. This exclusive pleasure and enjoyment of the soul is also directly connected with the body. Since Allah has no body He does not need and cannot have any kind of pleasure and exhilaration."

Jaber asked: "Is Allah not capable of feeling any kind of pleasure?"

Jafar as-Sadiq replied: "Allah is Omnipotent and All-Knowing. He knows what is pleasing and what is painful to us. That is why He gave us the sense of pleasure and the organs through which we have the pleasures and enjoyment. Then how can we say that He does not know what pleasure is?

"There is nothing in us or in the whole universe, which he does not know. He knows our pleasures and pains, our feelings and sentiments and our sorrows and suffering. But He Himself is above the things which are directly or indirectly related to corporal existence.

Jaber asked: "What are your views about death.?"

Jafar as-Sadiq replied: "Death is not total destruction or annihilation, as some people think. It is only a change of form. Everything in the universe is subject to change, except Allah."

Jaber asked: "Is death painful?"

Jafar as Sadiq said: "No, it is not."

Jaber remarked: "Then, why do we suffer from pain when we are sick or injured?"

Replied Jafar as-Sadiq: "These are the pains of life and the living. So long as someone is alive he suffers from all kinds of pain. But when the soul separates from the body there is no pain at all."

Jaber asked: "Does Allah manage the affairs of the universe with fixed and invariable laws?"

Jafar Sadiq replied: "Yes, He does."

Jaber remarked: "It follows from what you say that nothing new would happen till the end of the universe."

Jafar as-Sadiq replied; "There would be nothing new in the eyes of Allah. But to all His creations including human beings whatever happens in the universe seems new. Even the change of season seems new to us because every spring is different from the previous spring."

Jaber asked: "Is it possible for any creation of Allah to disobey the laws made by Him?"

Jafar as-Sadiq replied: "No, it is not possible for any of His creations, even an object, which is smaller than an atom, to disobey the laws made by Allah. All elements, which seem lifeless, are throbbing with life and praising the Lord. By their praising of the Lord I mean that they submit to their Creator and obey the laws, which He has framed for the management of the universe."

STARS OF THE SKY

Jaber asked: "What are the shining stars, which are at a fixed distance from us and are always in motion?"

Jafar as-Sadiq replied: "Each star is a small universe within the great universe. It is a collection of heavenly bodies, i.e., a sun and its satellites.

"They are in perpetual motion so that they may not fall down and break up. If their movement stops, the universe will come to an end. It is perpetual motion, which creates life. In other words perpetual motion itself is life. If the motion stops, life would cease to exist. It is by the Will of Allah that eternal motion never stops and the life cycle continues.

"Allah is free from all desires. He does not need the eternal motion of the universe which helps in the continuation of life. It is His gift to His creation. This eternal movement and life will continue till the Dooms-day."

Jaber asked: "What is the shape and form of stars in space?"

Jafar as-Sadiq replied: "Some stars are solid, some liquid and some in gaseous state."

Jaber said in wonderment: "How can we believe that stars may be in a gaseous state. Is it possible for gases to shine as the stars do at night?"

Jafar as-Sadiq said: "Not all the stars, but only those which are very hot, are in the form of gas. Excessive heat turns them into gas and makes them shine, just as very high temperature of our sun makes it shine. I think it is also in a gaseous state."

Jaber asked: "How does the movement of stars keep them from falling?"

Jafar as-Sadiq said: "Put a stone in a sling and swing it round your head. The stone will stay in the sling so long as you are rotating it. But as soon as you stop the rotation, the stone will fall down on the ground. In the same way the perpetual motion of stars keeps them from falling down."

Jaber asked: "Are there human beings in the stars? You have said just now that each star is a collection of heavenly bodies."

Jafar as-Sadiq replied: "I cannot say that there are human beings in other worlds, but I can say that there are living beings, whom we cannot see, because of great distances between us."

Jaber said: "What is the proof that there are living beings in other worlds?"

Jafar as-Sadiq replied: "It is my belief that Allah, Who has created the universe, knows everything. In His book, the Holy Quran, He has mentioned the name of Jinns. They are living beings, who cannot be seen. Perhaps the Jinns, who are in other worlds, may be like us or even better than us."

Jaber asked: "What do you mean by better than us?"

Jafar as-Sadiq replied: "Perhaps they are the people, who lived before in worlds like ours and because they were good and virtuous, they were sent to live in the worlds of stars after their death, just as we would be sent to a better place, if we are good and virtuous."

Jaber said: "It follows from what you have said that if we do good deeds in this world we would be sent to one of the stars after our death."

Jafar as-Sadiq replied: "I cannot say where we will be sent when we get up from the dream of our death. We may have to live in the same world where we live today. Allah is Great. He may create heaven and hell on the surface of this earth for His good and bad servants."

Jaber asked: "Does Allah know in advance where we

shall have to live after we wake up from our long sleep of death or He would make the decision after we have been brought back to life?"

Jafar as-Sadiq replied: "Allah is Eternal and Divine. He was not born and He would not die. He is Omnipotent and All-Knowing. The past and future are not for Him. He knows what has happened in the past and what will happen in future. There is nothing, which was not foreseen by Him and for which he has not issued His orders. He is not Allah, the Great, if something happens without His Knowledge and Permission. He knows in advance when a man will die and where is his place when he comes back to life."

Jaber said: "You have just now said that Allah has, from the very beginning, foreseen and ordained everything which will happen till the end of the world. It means that he has nothing to do and nothing to decide and is sitting idle now."

Jafar as-Sadiq replied: "Since human beings cannot conceive and comprehend what it means to be Eternal, Omnipotent and Omniscient, they raise such petty objections. Do you know what it means to be eternal and when eternity began and when it would end? This problem is beyond the power of understanding of the human mind and cannot be solved by any formula of mathematics. But to Allah this limitless period is just like one second, since He is above and beyond the domain of time. We shall also come out of it and shall not feel the passage of time any more after our death. When we are brought back to life after thousands of years, we shall think and feel that we had slept only for a while.

"The so called eternity is nothing more than one second for Him and in this period of one second also He is busy. He, Who always was and will always be, does not work as we work. We cannot use the word, "WORK" for Him in the same sense in which we use it for ourselves. We work because of our material and spiritual needs. We must work hard to earn our living or to acquire knowledge, which is our moral responsibility. Anyone, who does not work, gets tired and bored and his life

becomes dull and dreary. Those, who have nothing to do, go out for fishing or hunting so that they may engage themselves in some activity and get out of boredom.

"Allah, Who is Great, Eternal, Omnipotent and Omnipresent has no needs at all. If He needs anything or if He depends upon something, He would not be our Allah. If we discuss the activities of Allah, we shall confine Him within the limits of our knowledge and intelligence. Since we cannot understand the nature of work of Allah, we think that He works as we work or that His work is like our work. We also think that He shall get bored with idleness when He has no work to do."

Jaber asked: "Shall we know Allah better when we are brought back to life after our death?"

Jafar as-Sadiq replied: "There is no doubt that when we shall rise again after our death, we shall be at a higher level of understanding. The Great and Merciful Allah would not subject us to die and then bring us back to life to make us worse than what we are. Death is one of the stages of perfection and a step to reach a higher level of life."

Jaber asked: "Shall we see Allah after our death? I know that Prophet Moses had a negative reply when he asked to see Him. Will we also be disappointed in spite of the fact that we are Muslims and are better than other people?"

Jafar as-Sadiq replied: "We can see only those things, which are made of matter and reflect the rays of light. How can we see Allah, who is not made of matter and has no body? However, you can discover his presence and see Him in this very world with the eyes of your heart."

Asked Jaber: "I want to know why Allah does not appear before his creations?"

Jafar as-Sadiq replied: "It is His Divine Will. We cannot express our opinion on the subject. However, it is for our good that we cannot see Him."

Jaber said: "Please tell me how it is to our good that we cannot see Him."

Jafar as-Sadiq replied: "If we could have seen Allah with our eyes, He would have appeared to us a finite and limited being, just like any other object we see with our eyes. He would have not remained the great, eternal and infinite Allah, what He is. In that case we would have become disappointed of attaining an eternal and everlasting life. We would have thought how can Allah, who is himself limited, give us an eternal life. The greatness of Allah is beyond our limited intelligence and knowledge."

OLD AGE

Jaber asked: "Why do we get old?"

Jafar as-Sadiq relied: "Diseases are of two kinds-Acute and Chronic. Acute diseases come all of a sudden. They are either cured soon or they kill the patients. Chronic diseases are also of two kinds. Some of them have a prolonged life and some are incurable. Old age is a chronic disease, which is incurable."

Jaber said: "It is the first time that I hear from you that old age is a kind of chronic disease."

Jafar as-Sadiq said: "All of us suffer from this disease. Some at an early age and some at an advanced age. Those, who obey the commands of Allah and abstain from the things proscribed under the Islamic Code, take a long time to age, but others get old soon."

Jaber asked: "Why do we become dull minded and childish in our old age?"

Jafar as-Sadiq replied: "It is not a general rule. Everyone does not become dull minded in his old age. Some people are dull minded and stupid when they are young, but because of their blooming age no one takes much notice of their stupidity. But as they grow older it becomes apparent and noticeable. On the other hand those people who are intelligent and wise when they are young, remain so in their old age. However, they do not retain physical strength of their youth. The store of knowledge of the learned people may not be very big when they are young, but it increases with age and becomes very big, when they are old. Moreover, in old age, their wits become sharper, their views balanced and their judgement impartial. They always side and support the just cause."

Jaber said: "It is said that we become forgetful in our old age. Is it a general rule?"

Jafar as-Sadiq replied: "No, it is not the old age, which makes one forgetful. It is the decrease in the power of memory. The power of memory is just like any other power of the human body. Every power, which is not used, becomes weak. A young man, who does not use his memory, becomes forgetful.

"Old people, who confine themselves within the four walls of their houses, do not pay any attention to their environment, do not take any notice of the events and happenings of the world and add nothing to their reservoir of memory, become forgetful. They also start losing gradually what they had stored in their memory till they forget everything. Sometimes they do not recognize even their own grandchildren. But a person, who does not let the weakness of old age deteriorate his power of memory, finds it stronger than what it was when he was young. Since he has been using his memory throughout his whole life, he finds it at its zenith in his old age."

ALLAH KNOWS OUR PAST, PRESENT AND FUTURE

Jaber said: "I have heard from a person, who thinks he is a learned man, saying that all of us would be punished for the sin of our grandfather. When I asked him why should we suffer for the sin of our grandfather, his reply was:

"There is no past and present for Allah. Every time is present time to Him. In His eyes our time is also the time of Adam and Eve. He would, therefore, punish us, who are their children, for their sin."

Jafar as-Sadiq replied: "That man did not realize that there is no time for Allah including the present time. The time is for His creations only and not for Him, who has no beginning and no end.

"If he was a Muslim I would have reminded him that Allah has promised in His book that He would send His submissive and virtuous servants to heaven and the disobedient and evil doers to hell. It appears, from what he has said that he is not a Muslim. I must, therefore, prove by logic and reason that he is wrong. You can tell him that it is correct that the past, present and future are not for Allah, but it does not mean that He does not know what the past, present and future is for us.

To explain and clarify my point I would like to give an example:

"When you plough a field and sow the seeds of wheat you know what the future of the seeds would be without participating in the present and future of the crop. You know that the seeds would germinate, plants will grow, bring forth wheat which would ripen and finally you will reap the crop. Our past, present and future are not for Allah, but He knows what was our

past, what is our present and what would be our future. He also knows the past, present and future of all his creations and the whole universe. I may add that since we do not know much about the plants, we think that they have no knowledge of the passing of time. We may be wrong. The plants, like us, may have knowledge of their past, present and future.

"When he says that Allah knows only the present time, he confines Him to the present time. He also means that Allah is ignorant of our past, present and future. Allah is All-knowing and too Great to be confined to any time. It is a blasphemy in Monotheism.

"You can tell him that although the past, present and future are not for Allah, He knows our past, present and future. He knows that Adam was in the past and had committed sin and was punished for that. He was cast out of paradise. We are the children of Adam and Eve and are a future part of mankind. Allah would not punish us for the man who was in the past and committed a sin. Allah never punished children for the sins of their parents. He is too just to punish the children, when He has already punished the parents."

Jaber asked: "Why it is then said that children suffer for the evil deeds of their parents?"

Jafar as-Sadiq replied: "It is quite different from the punishment by Allah. When the parents do something wrong, it has an effect on the destiny of their offspring. It is possible that the children of an alcoholic parent may not be of sound mind. This cannot be called punishment by Allah. Similarly the children of a tyrant, who has killed many innocent persons, are hated by the children of the victims and others. This is not a punishment by Allah. The tyrant himself has created the situation for his children. Allah will never punish children for the sins of their parents. He is above such unreasonable and unjust acts."

Jaber said: "Please explain to me by logic and reason the meaning of "KUN FEYEKUN" (Be, and it would be), so that I may be able to convince non-Muslims, if they argue with me."

Jafar as-Sadiq replied: "I must first explain to you what is meant by the Will of Allah so that you may understand the meaning of Kun-Feyekun.

"When one of us is born he is quite ignorant. He knows nothing. As he grows up he starts learning about his environment. He must learn for years to acquire knowledge, which he did not have before, and become a learned man. Similarly an artisan is not born an artisan. He must work for a number of years as an apprentice under an expert artisan so that he may become an artisan. It shows that all our attributes and qualities are separate from us. They are added and acquired after we are born. In other words they are not a part of us.

"On the other hand all the attributes of Allah are not separate from Him. They are parts of His Self. He had, from the very beginning (if we can say beginning for Him) knowledge and power. Nothing was added to His knowledge and nothing was taken away from what He knew. He has every kind of knowledge and power, and each of them is a part of Him. The Will of Allah is also an attribute of Allah and is a part of Him. I know that an idol worshipper would not accept that. But he believes in the power of the idols, who are powerless.

"I would tell to those, who do not believe in one God that the WILL has its own independent existence. He would definitely retort that WILL does not have a separate existence. It depends upon the existence of a person who may have the Will.

"He is mistaken. All learned people agree that anything that exists will not be totally destroyed. It may change its form. The Will also does not cease to exist even after our death. Suppose water comes to our house from a river or a reservoir through a water pipe. If the water pipe is removed the water will not come to our house, but it does not mean that the river or the reservoir has ceased to exist. Our presence in relation to will is just like the water pipe. If we are dead and removed the will still exists.

"I would tell the non-believer that the Will is the essence

and spirit of the universe. It is the Will, which has manifested itself in the form of a visible and perceptible universe, the universe, which we can see, feel and touch and to which we also belong. The Will and the visible and perceptible phenomenon, which is the universe, are so linked together that they cannot be separated. We can call Will as the soul and universe as the body.

“The Will and the visible and perceptible phenomenon are also in us, but in a miniature form. The Will is our Will to live and the visible and perceptible phenomenon is our body. I have said before that there is no greater desire in a man than to remain alive.

“When the Will desired to become visible and perceptible, it came out in the form of the universe. There is no difference between the will and the universe except that we can see the universe, but we cannot see the Will. This is the meaning of “Kun Feyekun”, when explained logically.”

Jaber said: “In that case the Will is not destroyed even after our death.”

Jafar as-Sadiq replied: “No, death is also a part of the visible and perceptible phenomenon of the Will. If you want to convince someone, who does not believe in one God, tell him that the universe, which was created by Will is life. There is nothing in the universe, which has no life. The plants, animals, mountains, oceans, rivers, stones and stars are all throbbing with life.

“When the Will said Kun (Be thou), Feyekun (it came into being), that is, life came into being. Death does not mean total annihilation. It is a change of form and is also a kind of life. Both birth and death are two manifestations of life. Therefore, one should not be taken as auspicious and the other as ominous.”

Jaber asked: “What should be my reply if someone asks me: “With what material and by what means did Will create the universe or the life?”

Jafar as-Sadiq said: "We can see the material, which was used in the creation of universe, but our mind and our senses are unable to find out by what means the universe was created.

"To understand how and by what means Will created the universe or life, we must have much superior intelligence and better senses than what we have been endowed with."

Jaber asked; "Will the time come when human beings would understand how and by what means the universe or life was created?"

Jafar as-Sadiq replied: "We have seen that in some periods knowledge of mankind expanded and in others it remained stagnant and did not increase at all. However, the time may come when it may expand and spread far and wide in the world. At that time the learned people may find out how and by what means the universe or life was created."

THEORY OF GERMS

Jaber asked: "What are your views about sickness. Does it come by the order of Allah or is it accidental?"

Jafar as-Sadiq replied: "Diseases are of three kinds. Some are from Allah, some are of our own creation and some are caused by tiny living beings.

"Old age is a good example of the sickness which is from Allah. There is no escape from it. Sooner or later everyone must suffer from this disease and die.

"We suffer from some diseases due to our ignorance and following our false desires. We have been warned in the holy Quran not to indulge in excessive eating and drinking. If we eat a few morsels less and drink a few draughts less we shall not suffer from many diseases.

"Many diseases are caused by the enemies of the human body. These enemies are very small. They are so small that we cannot see them with our eyes. To protect us and to fight against these enemies, Allah has provided us with a large number of guards. Our guards are inside our bodies. They are so small that they cannot be seen with the naked eye. When the enemies enter the human body and attack it, the guards put up a fight against them and try to annihilate them. When they are successful in their fight we recover from the sickness."

Jaber asked: "Who are our enemies that attack us and make us sick?"

Jafar as-Sadiq replied: "They are of many kinds, but their constituents are limited."

Jaber said: "I cannot understand what you mean. How can they be of different kinds, but made of limited number of things."

Jafar as-Sadiq explained: "The book you read has thousands of words and each word has a different meaning, but all of them are composed of a limited number of letters. Similarly our enemies are of thousands of kinds, but are made of limited number of substances. This point can be explained by another example. There are thousands of animals and all of them are made of flesh, blood and bones, but they are not alike. A cat is not like a camel. One is carnivorous and the other herbivorous."

SUNDRY QUESTIONS OF JABER IBN HAYYAN

Jaber asked: "Do you know when this earth came into being?"

Jafar as-Sadiq said: "Only Allah knows that."

Jaber said: "The Jews say that it was created 4,762 years ago. Their prophets must have given that information to them."

Jafar as-Sadiq said: "Their prophets did not say that. It was written by the reporters of traditions. When a learned man observes mountains, plains, valleys, rivers and the oceans, he comes to realize that the world is much older than that."

Jaber asked: "Can you estimate the age of the earth?"

Jafar as-Sadiq replied: "I cannot give an estimate. The Indians are of the opinion that it came into being 20,000 years ago. The Chinese think that it is 100,000 years old. There is an edifice in Egypt which is, according to the Egyptians, about 6,000 years old. If we believe the Jew, then this building was constructed about 1,300 years before the earth came into being."

Jaber asked: "When will this universe come to an end?"

Jafar as-Sadiq replied: "The universe will never come to an end. The things, which have come into being, will never cease to exist. They may change their form."

Jaber asked: "Will a day come, as some people say, when the sun and moon will become dead and dark?"

Jafar as-Sadiq replied: "The time may come when the sun becomes dead and dark. At that time the moon, which reflects the light of the sun, will also lose its light. It would not be the end, but the beginning of a new era of the world."

Jaber asked: "Is it possible that the sun may not appear and we may have to face an endless night?"

Jafar as-Sadiq replied: "No, it is not possible. Allah manages the affairs of the universe by some unchanging laws. According to these laws the sun must rise every morning. When the sun gets dead and dark, it would also be according to the fixed laws of Allah."

Jaber asked: "When would the sun become a dead and dark star?"

Jafar as-Sadiq replied: "Only Allah Knows. But I am sure that it would be after a very long time."

Jaber asked: "What would be the fate of the people who are greedy. Would they go to paradise?"

Jafar as-Sadiq said: "It is imperative that everyone should work to live a decent and respectable life and support his family. Good people work hard to procure the necessities of life. They are engaged everywhere in agriculture, animal husbandry, gardening, construction work and production of different things, which satisfy the needs of the people. If there is a call for Jihad, they leave their work, go to the war and fight and die for a noble cause. If they save something out of their hard earnings for their old age and for their wives and children so that they may not starve after their death, they cannot be called greedy or miserly. They would be rewarded by Allah. They would go to paradise if they do not commit sins and deserve to be punished.

"The greedy persons are those, who gather big fortunes in a short time without hard work, and in most cases, by illegitimate means. They become greedy and want to have more and more. Allah has condemned such persons in His Holy Book in the following words: "Those who collect money and count it." Their greatest pleasure and enjoyment in life is nothing, but hoarding money, silver and gold and acquiring big chunks of land.

"They cannot give away anything out of their wealth for

the needy and the poor. They think that the poor people deserve to live in poverty, penury and want. They say that if Allah does not want someone to be prosperous, he must remain poor and a pauper. They are so attached to their wealth that they do not fight in the holy wars for fear of being killed and losing their possessions. Their fate in the other world would be what has been described in the holy Quran. Allah will never pardon a niggardly person, who has amassed wealth by illegitimate means, even if he gives all of it in charity."

Jaber asked: "How did the people learn about the attributes of Allah before Islam?"

Jafar as-Sadiq said: "Please name the attributes of Allah, discovered by the people before Islam."

Jaber said; "Monotheists had discovered before Islam that Allah was not born, He has no body, He has no partner, He cannot be seen, He has no fixed place, His attributes are not separate from Him and He is All-knowing and Omnipotent."

Jafar as-Sadiq replied: "I believe only in those attributes of Allah, which are mentioned and described in the Quran and nothing else."

Jaber asked: "Will you not use your brain to discover the attributes of Allah?"

Jafar as-Sadiq replied: "My brain is the brain of a human being. I cannot discover and understand by myself the qualities of Allah. Those, who tried to do so and described the attributes of Allah before Islam, made a guess and said that some of His qualities are positive and some are negative."

Jaber said: "Could you please elucidate this point?"

Jafar as-Sadiq replied: "The people, who tried to find out the attributes of Allah before Islam started with the assumption that their God should have what they did not have and that He should be able to do what they could not do. Since they could not fly in the air like the birds and live in the water like the fish, they believed that their God would be able to fly in the air and

live in the water. They took them as positive attributes of God.

"Since they could not live without having a place, they believed that their god would be able to live without a place. They took it as a negative attribute of God. That is why I do not believe in any attribute of Allah which is not mentioned in the Quran. I repeat that the human brain is not capable of finding out and understanding the attributes of Allah."

Jaber said: "It means that whatever has been said about the attributes of God before Islam is wrong?"

Jafar as-Sadiq replied: "Yes, every attribute, which has not been confirmed by the Quran, is wrong."

Jaber said: "Is it not our brain and our intelligence, which have guided us to discover and accept the existence of Allah? Why can the same human brain and intelligence not discover the qualities and attributes of Allah?"

Jafar as-Sadiq asked: "Do you have a pet lamb?"

Jaber said: "Yes, I have."

Jafar as-Sadiq said: "Since you have brought it up, it knows you, comes to you when you call it and eats from your hand. But does the lamb, which knows you quite well, also know what you are? Is it possible for that animal to know what are your likes and your dislikes? It has enough intelligence to know you, but by the same intelligence it cannot know what your qualities and your attributes are.

"Your pet animal does not know when you were born and what is your age. It also does not know when the house, you live in, was built, what material was used in its construction and how long would it last.

"Just like the lamb we know our Allah and obey His commands, but we do not know what He is, why He created the universe, when He created it, and how long it (the universe) would last.

"With our limited human knowledge we know Allah and worship Him,, but we know nothing more about Him than

what He Himself has said about Him in His book, the holy Quran.*

Jaber said: "But there is a difference between me and my lamb. I am curious to know about my Allah, but the lamb is not keen to know about me."

Jafar as-Sadiq said: "How do you know that your lamb is not inquisitive? It might be curious to know more about you, but the animal instinct and intelligence are so limited that it cannot know anything about you, learn your language and talk to you. It can understand only a few words. That is why you use the words it knows when you call it. As a matter of fact you speak to it in the language of the lamb. It would not understand if you talk to it in your language.

"O Jaber, do not think that Allah has sent the Quran in Arabic, because He speaks Arabic language. Allah is absolute Power, Knowledge and Wisdom. He knows all the languages, but He does not need the help of any language to convey His commands. It is we who need the help of words to convey our thoughts to others and communicate with them. The Quran was sent by Allah in Arabic language because our Prophet was an Arab and lived among Arabic speaking people. Just as you speak to your lamb in its language, Allah sent the Quran in the language of the Arabs so that they might know what He wanted. If He had spoken to them in some other language, they would not have understood a word of His."

Jaber said: "I understand what you say, but it does not solve my problems. I wonder why Allah did not give us intelligence enough so that we could have discovered His qualities and attributes ourselves, learnt more about Him and not remained like the pet lamb."

JAFAR AS-SADIQ AND MUFAZZAL BIN OMAR

One of the students of Jafar as-Sadiq (A.S.) was Mufazzal bin Omar, who has left behind valuable records of lectures of that great scholar. One day he asked the Imam in the classroom whether there were in reality auspicious and inauspicious hours, as stated by astrologers and fortune tellers.

Jafar as-Sadiq replied: "Whatever is related to superstition, sorcery, magic, voodoo, etc., etc., is condemned by Allah and prohibited by Islam."

Mufazzal said: "Auspicious and inauspicious times are revealed by astrologers and they are not magicians."

Jafar as-Sadiq replied: "When an astrologer claims to reveal auspicious and inauspicious hours he becomes a magician."

Mufazzal said: "Do you mean that all the people who believe in auspicious and inauspicious hours are wrong?"

"Yes, they are," replied Jafar as-Sadiq, "but we have favourable and unfavourable days."

Mufazzal remarked: "It means the same thing as what the astrologers say."

Said Jafar as-Sadiq: "Favourable and unfavourable times are different from what the astrologers say. They depend upon the person himself. We have once every few days or every 24 hours favourable times according to our physical condition and temperament. Because many of our inner organs perform some operations in the day time and some at night. The composition and density of our blood changes during different hours of the day and night. When we get up to offer our morning prayers, our blood is one fifth or one fourth less dense than what it is

when we go to bed at night after our daily chores. When the density of blood is low we feel lively and active and when it is high we are dull and drowsy. We can call them favourable and unfavourable times of our lives."

"This fact was known to ancient philosophers also. Hippocrates, the Greek physician, has said that our liver performs many functions, but not at one and the same time. Every work has its own time. That is why our mood and temperament are more congenial and suitable for certain types of work at certain times of day and night.

"Medicine for asthma is more effective, if it is taken at midnight rather than at any other time. It may not cure the disease, but it will give relief to the patient and help him sleep well. Therefore, to an asthma patient midnight is an auspicious time for taking medicine.

"Food, which makes you lazy and dull is baleful and sinister and the time when you are not inclined to work after heavy meals is an unpropitious time for you. On the other hand when you find yourself active, full of energy and fit for work it is a propitious time for you. These are auspicious and inauspicious times of our lives and not what the astrologers say."

Mufazzal asked: "Can you tell me the number of stars?"

Jafar as-Sadiq replied: "No one can even guess the number of stars."

Mufazzal asked: "Which is the brightest star in the sky?"

Jafar as-Sadiq replied: "What do you mean? Do you want to know how bright they actually are in the sky or how bright they appear to us?"

Mufazzal said: "Please elucidate your point. I do not follow you."

Jafar as-Sadiq replied: "The planets look very bright because they are near to us, but stars are actually far brighter than the planets."

Mufazzal asked: "Which is the brightest planet in the

sky."

Jafar as-Sadiq replied: "There is no planet in the sky, which is brighter than Venus. If you see it in the morning or evening during some periods of the year, you will think that it is another moon. Just like the moon, Venus also reflects the light of the sun. But it reflects more light than the moon, because Allah has made it with a substance, which is very good reflector of light."

Mufazzal asked: "Which is the next planet in brightness?"

Jafar as-Sadiq replied: "Mercury comes next in brightness."

Asked Mufazzal: "Which is the brightest star in the sky?"

Jafar as-Sadiq replied: "Our forefathers, who lived in the desert, knew all the bright stars which shine in the sky. When they travelled in the desert at night they used to find their way by the help of stars. Since we do not live in the desert we do not know the stars. The brightest star in the heavens is Sirius (the Dogstar). This star was known to our ancestors, who lived in the desert. They knew from where it appears in each season. The next bright star, after Sirius is, Sumak Ramaj (Arcturus). This star was also known to our ancestors, who gave that name to it.

"If you are interested to know more about stars and degrees of their brightness, I will give to you the maps of constellations and stars, prepared by Ptolemy. You will find in these maps names of constellations and stars and their situation in the sky. There is also a table, attached to the maps, in which are mentioned the names of all bright stars and the degree of their brightness."

Mufazzal said: "It would be a great favour if you give me the maps."

Jafar as-Sadiq asked an employee of the Academy to bring the book containing the maps. When the book was brought, he gave it to Mufazzal and said: "Ptolemy did not know that stars shine because they generate light themselves and that many of them are far brighter than our sun. This proves that they

are larger in size and have more matter than our sun has.

"Sirius and Arcturus are much bigger than our sun. Since they are very far away from us all their light rays do not reach us. That is why they look so small. If our sun goes farther away from us it would also look very small like a star."

Mufazzal took the book of maps, turned the pages and asked his teacher to tell him something about the history of books.

Jafar as-Sadiq said: "Books have a long history. They came out in their present form over hundreds of years. In the beginning people were ignorant and did not know how to write. They had nothing worthwhile to write about and had no paper on which to write.

"Books were first written by the prophets of Allah after the art of writing was invented. Egyptians used to write on the leaves of a kind of grass or sedge, which grew in the Nile valley. They would stick the leaves together to make them broad and then write on them. When the ink was dry the leaves were made into rolls. In ancient Egypt there were scrolls of papyrus about 40 zirah long to write on (one zirah = 41 inches).

Those people, who had no grass, like papyrus, used to write on parchment (skin of a goat or sheep, prepared for writing). When writing was to be preserved it was engraved on stones."

Mufazzal asked: "How did people invent paper and use it as a writing material?"

Jafar as-Sadiq replied: "Paper is a Chinese invention. They make paper from silk. After a long time other nations, including the Arabs, learnt the art of paper making, but still they do not know how to make paper from silk. That is why fine quality paper is imported from China. Since paper is a very expensive commodity, we use wooden boards in the class rooms."

Mufazzal asked: "Why can't we make paper from silk?"

Jafar as-Sadiq said: "To produce paper from silk we must have silk worms as well as mulberry trees, the leaves of which provide nourishment to them. Moreover, the Arabs do not know how to make paper from silk. The Chinese guard jealously the secret of making paper from silk. They never employ any foreigner in their paper making factories lest they may learn the art. Similarly they do not disclose the secret of making porcelain with beautiful designs. They are made from a kind of clay, but it is not known from where it is obtained and how it is processed. It is also not known with what colouring material they make the designs so that when porcelain is burnt in the kiln it retains its beautiful colours. To keep the whole process secret no foreigners are employed in porcelain factories.

"I have heard that there are special factories of chinaware, which are owned by private individuals. The secret of making chinaware is passed from father to son. All employees are trusted and reliable relatives and friends of the owners, who would never disclose or divulge the secret processes to the foreigners."

THE END



